

NATIONAL BUREAU OF STANDARDS REPORT

9938

Annex to

A Simulation of a Highway Maintenance Operational Unit



U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT

NBS REPORT

4314451

February 1969

9938

Annex to A Simulation of a Highway Maintenance Operational Unit

By

W.F. Druckenbrod
H.D. Bouland
W.G. Hall
J.A. Yurow

IMPORTANT NOTICE

NATIONAL BUREAU OF STANDARDS
for use within the Government,
and review. For this reason, the
whole or in part, is not authentic
Bureau of Standards, Washington
the Report has been specifically

Approved for public release by the
Director of the National Institute of
Standards and Technology (NIST)
on October 9, 2015

ess accounting documents intended
s subjected to additional evaluation
e listing of this Report, either in
re Office of the Director, National
by the Government agency for which
copies for its own use.



U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

PREFACE

This annex supplements the basic report "Simulation Model of a Highway Maintenance Operational Unit."

The flow charts contained herein are intended as a supplement to the more functionally oriented charts in the report. These charts are at a micro level, and come very close to exhibiting a one-to-one correspondence between the computer program statement and a flow chart expression.

The notation and symbology were deliberately kept simple in order to facilitate correlation between the computer program and the flow charts. The tables included show:

Table (1) Program Statement Numbers and Corresponding Connectors
by Page

Table (2) Entry and Exit Connectors by Page

Table (3) Exit Connector Page by Corresponding Entry Connector

Table (4) Statement Numbers by Page

Table (5) Computer Printout

Flow Chart Description

Subroutines

HZONE σ Pages S1 and S2

This subroutine is entered each time a new job is encountered. Arguments are job parameters, highway, and zone lists. Calculations are travel times and control parameters for the job.

RANK δ Page S3

This subroutine is used to rank the entries within an array in ascending order. Arguments are the arrays JRANK & JUNK1 having the same dimension. JRANK(I) = I and JUNK1 is the array on which the ranking is required. Upon exit from the subroutine JRANK(I) contains the rank index of JUNK1(I).

α Page S4

This subroutine checks the arrays used for the job inventory list and finds an available slot. There are no arguments as such; however, the last job which has been removed from the inventory is "remembered" unless that slot has been used subsequently. Output is the index of a usable slot. This subroutine is not in standard FORTRAN form.

β Page S5

This subroutine calls HZONE and calculates time on job. This is not in standard FORTRAN form.

Initialization

Pages 1-2

This section reads in or constructs bookkeeping type parameters. Included are such things as maximum dimensions for lists, holiday indices, day of week of the first day of the year, number of days in each month and the name of each month.

Input - (All input sections include an optional print back)

Page 3

This section reads the names of the I-O gates, the input and output gates and the job title, number available and hourly cost of personnel for each job category.

Page 4

This section reads the name, serial number, number, number available, and hourly cost for each type of equipment.

Pages 5-6

This section reads parameters belonging to each job type including a description of each basic crew which can work at this job type. The nominal hourly cost for each crew is calculated.

The variable HCST(I) is the nominal hourly cost for crew I. It is the sum of number of crew members of each labor category times the hourly cost of each equipment type used times the hourly cost.

$$\text{HCST}(I) = \text{IEO1}(I) * \text{CE1} + \text{IEO2}(I) * \text{CE2} + \text{IEO3}(I) * \text{CE3} + \text{ILAB}(I) * \text{CL} \\ + \sum \text{INO}_i * \text{EQC}_i$$

Nominal cost is used for all subsequent rankings; it may differ slightly from the true cost since no labor category shifts are included.

Pages 7-8

This section reads a list of highways which may be referenced by highway number rather than zone number. For each such highway, the highway number, the zones through which it passes and the miles per zone are read.

Page 9

This section reads weather data and constructs a weather table.

Page 10

This section reads the depot to zone travel time for each zone.

Page 11

This section reads recurring or periodic jobs. Several one-time-only initialization functions are performed.

$$\text{XMULT} = (\text{IESD}(J) - 365 + \text{NTST} * \text{IPER}(J)) / \text{IPER}(J)$$

XMULT is a fudge factor used as a start-up device. Its effect is to implement the assumption that each recurring job encountered on day 1 of the simulation was actually discovered on the earliest starting day for this job type in the preceding year plus whatever multiple of the period is required to get the starting date to within the last period of the preceding year. The work units of the job in the recurring file are replaced as the job is put into the job inventory by the work units times the ratio of the period minus the number of days of the

last period which were in the preceding year to the total period. This enables the beginning date of each recurring job to be independent of the simulation starting date by assuming that these jobs have been discovered some time in the preceding year during the last period for the type. Hence the work units from the recurring prototype file are reduced linearly as the job is put into inventory to compensate for that portion of the period which was in the preceding year.

Day Initialization

Pages 12-18

This section clears all accumulated daily sums of costs, worker hours, etc.; if appropriate, weekly and yearly sums are cleared also. The current simulation day is examined to ascertain the day of the week, holiday status, and length of work week; these are used to preset gates to allow for reports, weekly planning, and to establish criteria for determining the jobs which may be worked on. Regular (read in) and recurring jobs are put into the job inventory. Weather generated jobs are then put into inventory.

Weekly Plan Preparation

Pages 19-26

The projected work for the week is calculated and reported. Estimates are based on full work days with no allowance for emergency or weather generated jobs.

Page 23

$$WPR = VPR * MULT / (IVDL - J8 + 1)$$

$$L1 = \frac{WPR}{PROD * TOJ}$$

Page 25

$$SLH(M,N) = SLH(M,N) + Y * ILAB(L)$$

$$SE1H(M,N) = SE1H(M,N) + Y * IE01(L)$$

$$SE2H(M,N) = SE2H(M,N) + Y * IE02(L)$$

$$SE3H(M,N) = SE3H(M,N) + Y * IE03(L)$$

$$TCL(M,N) = TCL(M,N) + Y * (ILAB(L) * CL + K1 * CE1 + K2 * CE2 + K3 * CE3)$$

$$\begin{aligned} \text{NDEQT}(\text{L5}) &= \text{NDEQT}(\text{L5}) - \text{L1} * \text{INO}(\text{L4}) \\ \text{EQH}(\text{M},\text{N},\text{L4}) &= \text{EQH}(\text{M},\text{N},\text{L5}) + \text{INO}(\text{L4}) * \text{Y} \\ \text{EQTOI}(\text{M},\text{N}) &= \text{EQTOL}(\text{M},\text{N}) + \text{INO}(\text{L4}) * \text{Y} * \text{EQC}(\text{L5}) \end{aligned}$$

Report Print

Pages 26-29

The weekly plan report, and daily, weekly, and yearly work reports are printed. All these reports have essentially the same format.

Page 27

$$\text{Y} = \text{SLH}(\text{M},\text{I}) + \text{SE1H}(\text{M},\text{I}) + \text{SE2H}(\text{M},\text{I}) + \text{SE3H}(\text{M},\text{I})$$

Post Report Gating

Page 30

Depending upon which report has just been printed, the appropriate bookkeeping is done and proper control transfers are set.

Pre Assignment Processing

Pages 31-33

For each job in the job inventory, an indicator is set to show which jobs are subject to normal crew assignment procedures. Those jobs excluded are emergency jobs, weather generated jobs, jobs which have a discovery date after simulation date, and jobs which are precluded by weather. All auxiliary crews are released and IDELTA is constructed.

Crew Assignment

Page 33 - Daily Inventory Construction

The daily inventory construction is treated as a special case of inventory updating; hence, this sequence maybe reentered after some crew assignments have been made.

Pages 33-35 - Weather Jobs

Weather generated jobs have crews assigned in this section. Generally, these jobs are considered to be sufficiently large to require all available resources so that assignment is constrained by crews available rather than by any characteristics of the job itself. The daily resource inventories are updated.

Page 34

$$\begin{aligned} \text{SLH}(\text{M},\text{J}) &= \text{SLH}(\text{M},\text{J}) + \text{X} * \text{X9} \\ \text{SE1H}(\text{M},\text{J}) &= \text{SE1H}(\text{M},\text{J}) + \text{X} * \text{X1} \\ \text{SE2H}(\text{M},\text{J}) &= \text{SE2H}(\text{M},\text{J}) + \text{X} * \text{X2} \\ \text{SE3H}(\text{M},\text{J}) &= \text{SE3H}(\text{M},\text{J}) + \text{X} * \text{X3} \\ \text{TCL}(\text{M},\text{J}) &= \text{TCL}(\text{M},\text{J}) + \text{X} * (\text{X9} * \text{CL} + \text{X1} * \text{CE1} + \text{X2} * \text{CE2} + \text{X3} * \text{CE3}) \\ \text{EQH}(\text{M},\text{J},\text{J7}) &= \text{EQH}(\text{M},\text{J},\text{J7}) + \text{X6} * \text{X} \\ \text{EQTOT}(\text{M},\text{J}) &= \text{EQTOT}(\text{M},\text{J}) + \text{X} * \text{X6} * \text{EQC}(\text{J7}) \end{aligned}$$

Page 35 - Inventory Update

Daily resource inventories are updated to reflect depletion by weather generated jobs.

Pages 35-36 - Permanent Crew Feasibility

This section verifies that there are adequate resources to fill all permanent crew assignments which have been made prior to simulation day for all jobs on which work is possible. If resources are inadequate, all permanent crew assignments are canceled; otherwise, permanent assignments are confirmed and resource inventories are reduced accordingly.

Pages 36-40 - Normal Crew Assignment

The normal assignment procedures are used to assign crews made up from resource inventories to jobs other than weather generated, emergency, and X type jobs.

Page 41 - JOB X Inventory

All remaining labor resources are converted to man hours from man days and tentatively assigned to JOB X.

Pages 41-46, 53 - Emergency Job Assignment

All jobs in inventory are searched to locate emergency jobs. Assignments to these jobs are made in preferential order from JOB X, from among auxiliary crews, or from permanent crews. Within each category of assigned crew, choice is made by favoring the last crew assigned to a job.

Pages 41-42 - From JOB X

Work units, costs, labor hours, and equipment hours are accumulated for those emergency jobs which can be accomplished by JOB X resources.

Page 42

$$\begin{aligned} \text{TCL}(\text{M},1) &= \text{TIME} * (\text{Y} * \text{CL} + \text{X1} * \text{CE1} + \text{X2} * \text{CE2} + \text{X3} * \text{CE3}) + \\ &\quad \text{TCL}(\text{M},1) \\ \text{EQH}(\text{M},1,\text{K3}) &= \text{EQH}(\text{M},1,\text{K3}) + \text{INO}(\text{N}) * \text{TIME} \\ \text{EQTOT}(\text{M},1) &= \text{EQTOT}(\text{M},1) + \text{INO}(\text{N}) * \text{TIME} * \text{EQC}(\text{K3}) \\ \text{NDEQT}(\text{K3}) &= \text{NDEQT}(\text{K3}) - \text{INO}(\text{N}) * \text{TIMET} \end{aligned}$$

Pages 42-44 - From Auxiliary Crews

The closest (in travel time) auxiliary crew which can accomplish the emergency job is released from the job to which it has been assigned and assigned to JOB X for as many hours as are required to do the emergency job. Work done, costs, etc. done on the job to which the crew was originally assigned are accumulated for that fraction of the day for which the crew remained assigned. (8 hours - emergency job time). The JOB X emergency assignment section is reentered.

Page 44

$$\begin{aligned} &(\text{8} * \text{ILAB}(\text{J5}) + \text{DXL}) : (\text{2} * \text{TIME}) \\ &(\text{8} * (\text{IEO1}(\text{J5}) + \text{IEO2}(\text{J5}) + \text{IEO3}(\text{J5})) + \text{DXE1} + \text{DXE2} + \text{DXE3}) : \text{TIME} \end{aligned}$$

Pages 45-46 - From Permanent Crews

The procedure is exactly like from auxiliary crews above, except selection is made from among permanent crews.

Page 45

Exactly as the two instructions on Page 44.

Pages 46-52 - Summary Creation

All costs, labor hours, equipment hours, etc., which appear in the reports are accumulated. Surplus capability (fractional crew days) for a job which is completed in less than a full day is put into JOB X or credited to another job of the same type. Appropriate reports are printed, the simulation day is advanced and the day initialization section is reentered.

Table 1

Program Statement Numbers and Corresponding Connectors by Page

Page	Statement	Connector	Other Reference (page)
1	16	start	
	400	-	
	410	-	
2	-	2	1
	45	-	
	65	-	
3	1	3A	
	2	-	
	3	-	
	46	-	
	47	-	
	1102	3	2
4	48	4	3
	49	-	
	50	-	
	52	-	
5	4	5	4
	5	5A	6
	6	5B	6
	9200	-	
6	-	6	5
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	9210		
	9220		
	9370		
7	20	7	5
	21	-	
	22	-	
	23	-	
	39	-	
	9230	-	
	9240	-	

Table 1 continued

Page	Statement	Connector	Other Reference
8	24	8	7
	25	-	
9	28	9	8
	29	-	
	30	-	
	31	-	
	32	-	
	33	-	
	34	-	
	35	-	
	36	-	
	37	-	
	38	-	
10	40	10	9
	41	-	
	42	-	
	43	-	
	44	-	
	441	-	
11	51	11	10
	53	-	
	54	-	
	55	-	
	56	-	
	57	-	
	300	-	
	305	-	
	310	-	
	315	-	
	9960	-	
12	58	12	11 30
	700	12A	
	701		
	702		
	703		
	1104		
13	-	13	12
	1036	-	
	1038	-	
	1040	-	
	1042	-	
	1043	-	

Table 1 continued

Page	Statement	Connector	Other Reference
14	-	14	13
	62	-	
	69		
	70	14A	15,18
	71	α_1	
	440	-	
	442	-	
	444	-	
	709	-	
15	63	15	14
	64	β_1	
	72	-	
	630	-	
	631	-	
16	61	-	
	80	16	15,14
	81	α_2	
	84	16B	17
	175	16A	17
	301	-	
	304	-	
	704		
17	82	-	
	83	-	
	302	17	16,14
	303	-	
	325	17A	Subroutine
	820	-	
	830	-	
	-	β_1	
	3030		
18	-	18	16
	90	-	
	91	α_3	
	92	-	
	93	α_4	
	95	-	
	96	α_5	
	840	-	
	3090	-	
	3096	-	
	150		

Table 1 continued

Page	Statement	Connector	Other Reference
19	- 1024 2000 2021 2022 3020 3095 -	19 - - - - - - δ_1	18
20	1001 1002 - - -	20 - 20A 20B 20C	19 21 21 21
21	- 1003 1004 1015	21 - - 21A	20 20
22	- 1114 1116 2050	22 - - 22A	21 26
23	- - - 1005 1006 1007	23 23A 23B - - 23D	22 25 25 24
24	1008 1009 1010 1011 1012 1026	24 - - - - -	23
25	1014 1016 1018 1020	25 25A 25B	24 23 23
26	- 773 1106 1112 3091	26 26A - - -	25 30,52

Table 1 continued

Page	Statement	Connector	Other Reference
27	- 775 777	27 - -	26
28	- 1044	28 -	27
29	- 780 782 783 785 7801	29 - - - - -	28
30	766 772 774 776 1028 1641 7730	30	29,26,52
31	- 105 111 112 113 452 453 1046	31A 31	32 18,35
32	114 115 116 117 118 119 121 122 123 124 454	32 32A 32B 32C	31 31 31 31
33	110 139 250 450 451	33A 33	31,32 32,36

Table 1 continued

Page	Statement	Connector	Other Reference
34	-	34	33
	-	34A	35
	420		
	422		
	424		
	426		
	428		
	430		
	432		
35	-	35	34
	106	35A	33
	125		
	126		
	141	35E	37
	172	35D	40
	176	35C	36
	177	35B	36
	434		
	436		
36	-	36	35
	107		
	129		
	130		
	131		
	140	36A	35
	157		
	161	36B	35
37	132	37	36
	133		
	138		
	144		
	148	37C	38,39,40
	178	37B	40
38	142	38	37,36
	143		
	145		
	280		
	285		
	1452		
	1454		

Table 1 continued

Page	Statement	Connector	Other Reference
39	146	39	38,36
	147		
	162	39A	37
	163		
	164		
	169		
	180		
40	160	40B	37
	165	40	39
	168		
	170		
	171	40C	38
	179	40A	37
	181		
	275		
41	-	41	40
	2004		
	2006		
	3006	41A	46
42	-	42	41
	200		
	201		
	202	42B	53
	203	42A	41
	204		
	205		
	2008		
	2010		
43	-	43	42
	-	43B	44
	-	43C	44
	206	43A	44,42
	207		
	208		
	221		
44	-	44	43
	209		
	210	44A	43
	211		
	218	44B	43

Table 1 continued

Page	Statement	Connector	Other Reference
45	- 214 215 216 217 220 290 318	45	44
46	- - - 222 223 1118 1120 1130	46 46B 46C 46A	45 48 48 41,42
47	650 651 652 653 760 761 1122 1124	47	46
48	- 762 763 - 1126 7611	48 48A 48B 48C - 48D	47 47 46 51 51
49	- 7600 7601 7602 7604 7620	49	48
50	- 7622 7624	50	49

Table 1 continued

Page	Statement	Connector	Other Reference
51	- 2003 7610 7626 20030	51 51B 51A - -	50 48 48,49
52	- 770 771 1110 2002	52 52A - -	51 33,51
53	212 213 219	53	44,45

Table 2
Entry and Exit Connectors by Page

<u>Page</u>	<u>Entry</u>	<u>Exit</u>	<u>Page</u>	<u>Entry</u>	<u>Exit</u>	<u>Page</u>	<u>Entry</u>	<u>Exit</u>
1	START	2	17	17 17A	16A 16B	31	31 31A	32 32A 32B 32C 33
2	2	3	18	18	14A 19 31	32	32 32A 32B 32C	31A 33 33A
3	3 3A	4	19	19	20	33	33 33A	34 35A 52A
4	4	5 HALT	20	20 20A 20B 20C	21 21A	34	34 34A	35
5	5 5A 5B	6 7 HALT	21	21 21A	20A 20B 20C	35	35 35A 35B 35C 35D 35E	31 34A 36 36A 36B
6	6	5A 5B HALT (3)	22	22 22A	23	36	36 36A 36B	33A 37 38 39
7	7	8 HALT (2)	23	23 23A 23B 23C 23D	24 25A 25B	37	37 37B 37C	35E 39A 40A 40B
8	8	9	24	24	23D 25	38	38	37C 40C
9	9	10	25	25 25A 25B	23A 23B 26	39	39 39A	37C 40
10	10	11	26	26 26A	22A 27 30			
11	11	12 HALT (2)	27	27	28			
12	12 12A	13	28	28	29			
13	13	14	29	29	30			
14	14 14A	15 16 17	30	30	12A 26A			
15	15	14A 16						
16	16 16A 16B	17						

Table 2 (continued)
Entry and Exit Connectors by Page

<u>Page</u>	<u>Entry</u>	<u>Exit</u>	<u>Page</u>	<u>Entry</u>	<u>Exit</u>
40	40 40A 40B 40C	35D 37B 37C 41	52	52 52A	26A 30
41	41 41A	42 46A	53	53	42B
42	42 42A 42B	43 43A 46A			
43	43 43A 43B 43C	44 44A 44B			
44	44 44A 44B	43B 43C 45 53			
45	45	46 53			
46	46 46A 46B 46C	41A 47 48B			
47	47	48 48A			
48	48 48A 48B 48C 48D	46B 46C 49 51A 51B			
49	49	50 51A			
50	50	51			
51	51 51A 51B	48C 48D 52 52A			

Table 3

Exit Connector Page by Corresponding Entry Connector

Connector	Entered From	Connector	Entered From	Connector	Entered From
2	1	20	19	35	34
3	2	20A	21	35A	33
		20B	21	35B	36
		20C	21	35C	36
				35D	40
4	3	21	20	35E	37
		21A	20		
5	4	22	21	36	35
5A	6	22A	26	36A	35
5B	6			36B	35
6	5	23	22	37	36
		23A	25	37B	40
		23B	25	37C	38, 39, 40
7	5	23D	24		
8	7	24	23	38	36, 37
9	8	25	24	39,	36, 38
		25A	23	39A	37
10	9	25B	23	40	39
11	10	26	25	40A	37
		26A	30, 52	40B	37
12	11			40C	38
12A	30	27	26	41	40
13	12	28	27	41A	46
14	13	29	28	42	41
14A	15, 18			42A	41
15	14	30	26, 29, 52	42B	53
16	14, 15			43	42
16A	17	31	18, 35	43A	42, 44
16B	17	31A	32	43B	44
				43C	44
17	14, 16	32	31		
17A	Subroutine	32A	31	44	43
17B	Subroutine	32B	31	44A	43
		32C	31	44B	43
18	16				
19	18	33	31, 32	45	44
		33A	32, 36		
				46	45
		34	33	46A	41, 42
		34A	35	46B	48
				46C	48

Table 3 (continued)

Exit Connector Page by Corresponding Entry Connector

<u>Connector</u>	<u>Entered From</u>
47	46
48	47
48A	47
48B	46
48C	51
48D	51
49	48
50	49
51	50
51A	48, 49
51B	48
52	51
52A	33, 51
53	44, 45

Table 4

Statement Numbers by Page

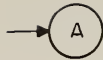
Statement	Page	Statement	Page	Statement	Page	Statement	Page
		138	37				
1- 3	3	139	33	285	38	772	30
4- 6	5	140	36	300	11	773	26
7-15	6	141	35	301	16	774	30
16	1	142-143	38	302-303	17	775	27
20-23	7	144	37	304	16	776	30
24-25	8	145	38	305	11	777	27
28-38	9	146-147	39	310	11	780	29
39	7	148	37	315	11	782-783	29
40-44	10	150	17	325	17	785	29
45	2	157	36	400	1	820	17
46-47	3	160	40	410	1	830	17
48-50	4	161	36	420	34	840	18
51	11	162-164	39	422	34	1001-1002	20
52	4	165	40	424	34	1003-1004	21
53-57	11	168	40	426	34	1005-1007	23
58	12	170	40	428	34	1008-1012	24
61	16	172	35	430	34	1014	25
62	14	175	16	432	34	1015	21
63-64	15	176-177	35	434	35	1016	25
65	2	178	37	436	35	1018	25
69-71	14	179	40	441	10	1020	25
72	15	180	39	442	14	1024	19
80-81	16	181	40	444	14	1026	24
82-83	17	200-205	42	450-451	33	1028	30
84	16	206-208	43	452-453	31	1036	13
90-93	18	209-211	44	454	32	1038	13
95-96	18	212-213	53	630-631	15	1040	13
		214-217	45	650-653	47	1042-1043	13
105	31	218	44	700-703	12	1044	28
106	35	219	53	704	16	1046	31
107	36						
110	33	221	43	709	14	1102	3
111-113	31	222-223	46	760-761	47	1104	12
		250	33	762-763	48	1106	26
114-119	32	275	40	766	30	1110	52
121-124	32	280	38	770-771	52	1112	26
125-126	35						
129-131	36						
132-133	37						

Table 4

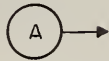
Statement Numbers by Page (continued)

<u>Statement</u>	<u>Page</u>	<u>Statement</u>	<u>Page</u>	<u>Statement</u>	<u>Page</u>	<u>Statement</u>	<u>Page</u>
1114	22	7801	29				
1116	22	9200	5				
1118	46	9210	6				
1120	46	9220	6				
1122	47	9230	7				
1124	47	9240	7				
1126	48	9370	6				
1130	46	9960	11				
1452-1453	38	20030	51				
1641	30						
2000	19						
2002	52						
2003	51						
2004	41						
2006	41						
2008	42						
2010	42						
2021-2022	19						
2050	22						
3006	41						
3020	19						
3030	17						
3090	18						
3091	26						
3095	19						
3096	18						
7600-7602	49						
7604	49						
7610	51						
7611	48						
7620	49						
7622	50						
7624	50						
7626	51						
7730	30						

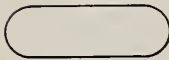
Symbols & Notation



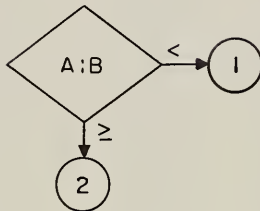
Exit Connector – see page A



Entrance Connector



Halt or start indicator

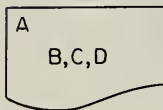


Decision Box

If A is less than B transfer control to connector 1

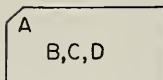
A is greater than or equal to B transfer to 2

Similar notation is used for =, ≠ etc.



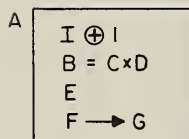
Either a line of print or a report

B,C, & D are printed according to format A



Input Record

B,C, & D are read according to format A



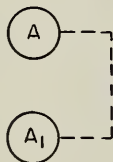
Computation Box – begins with program statement A

I is replaced by $I + I$

B is replaced by $C \times D$

E is calculated; relation is too long to fit into box and is given in text

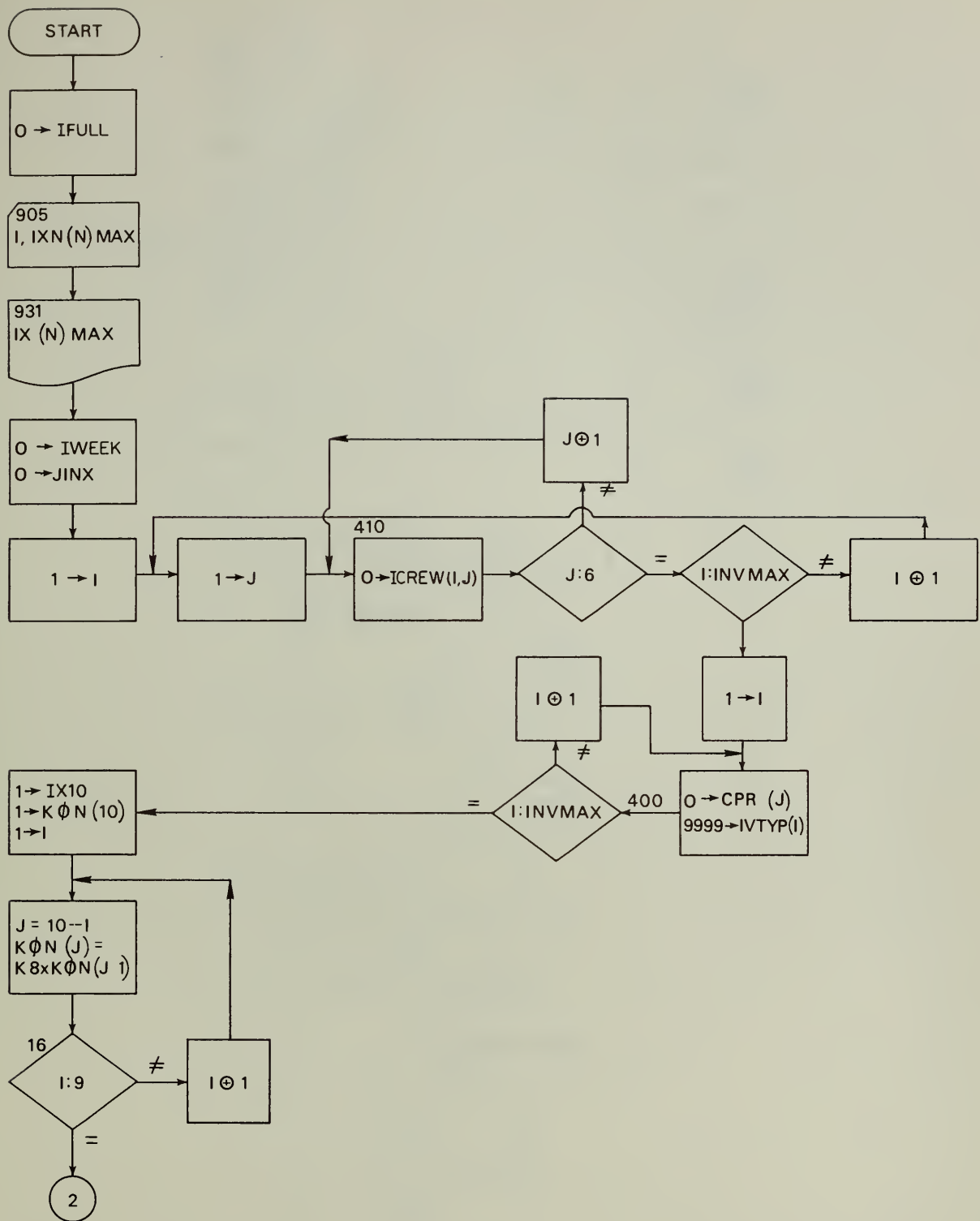
F replaces G

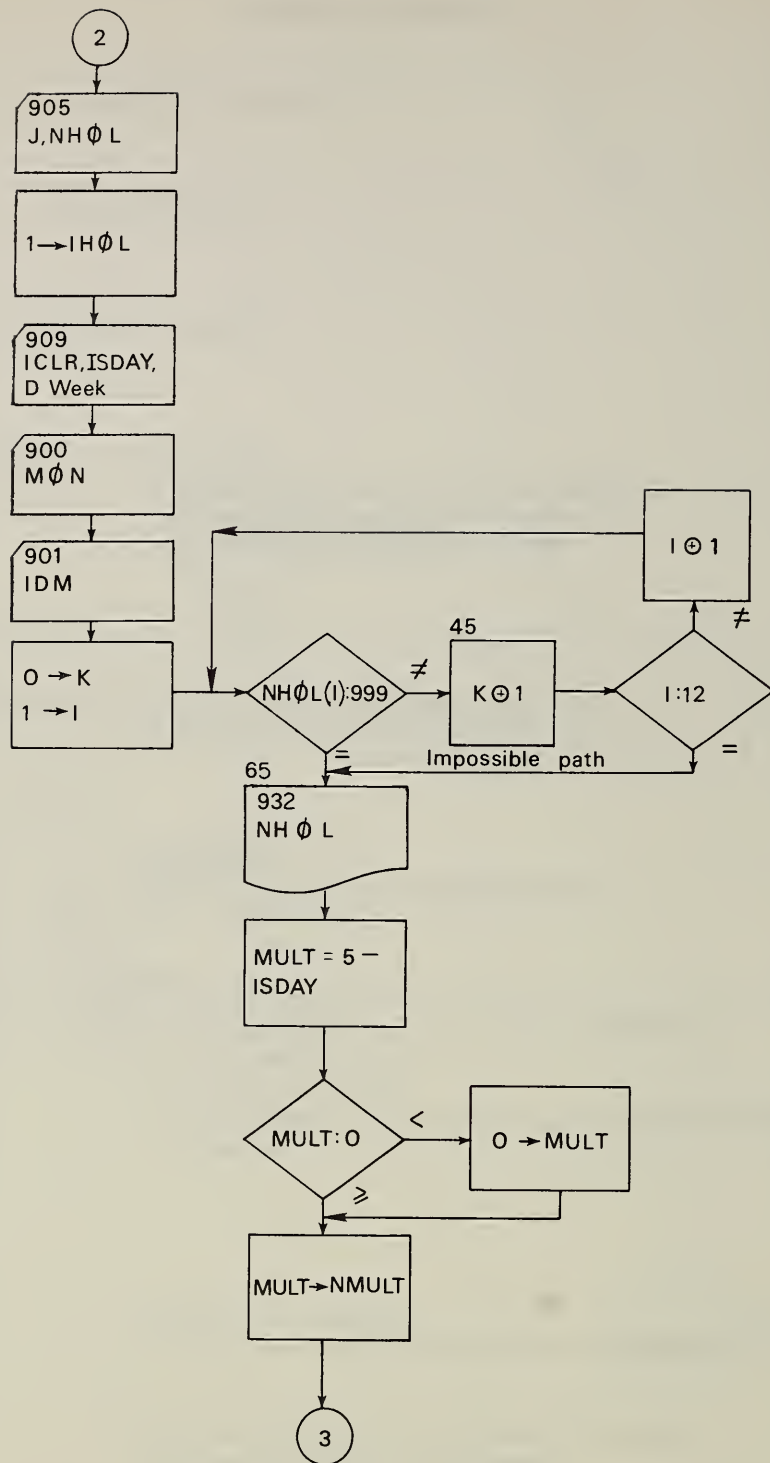


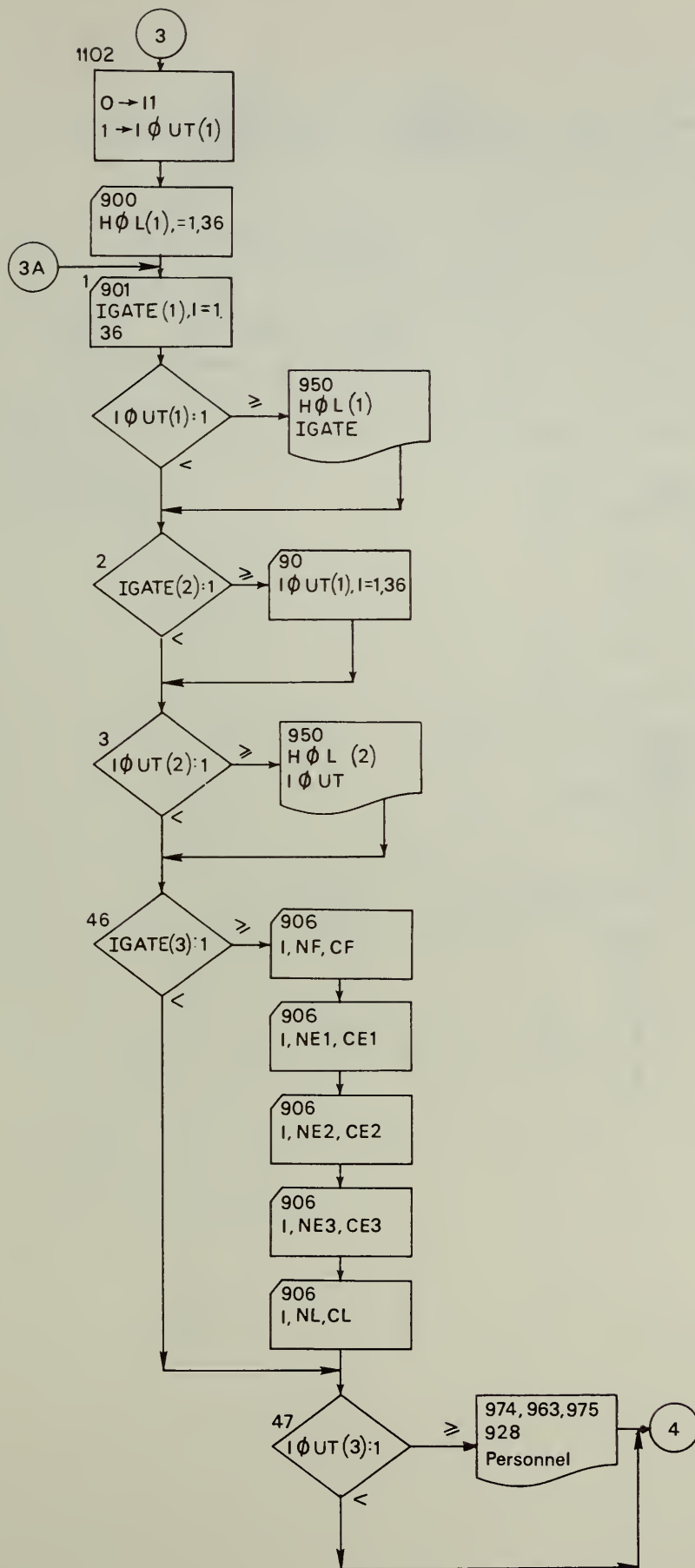
Subroutine call indication

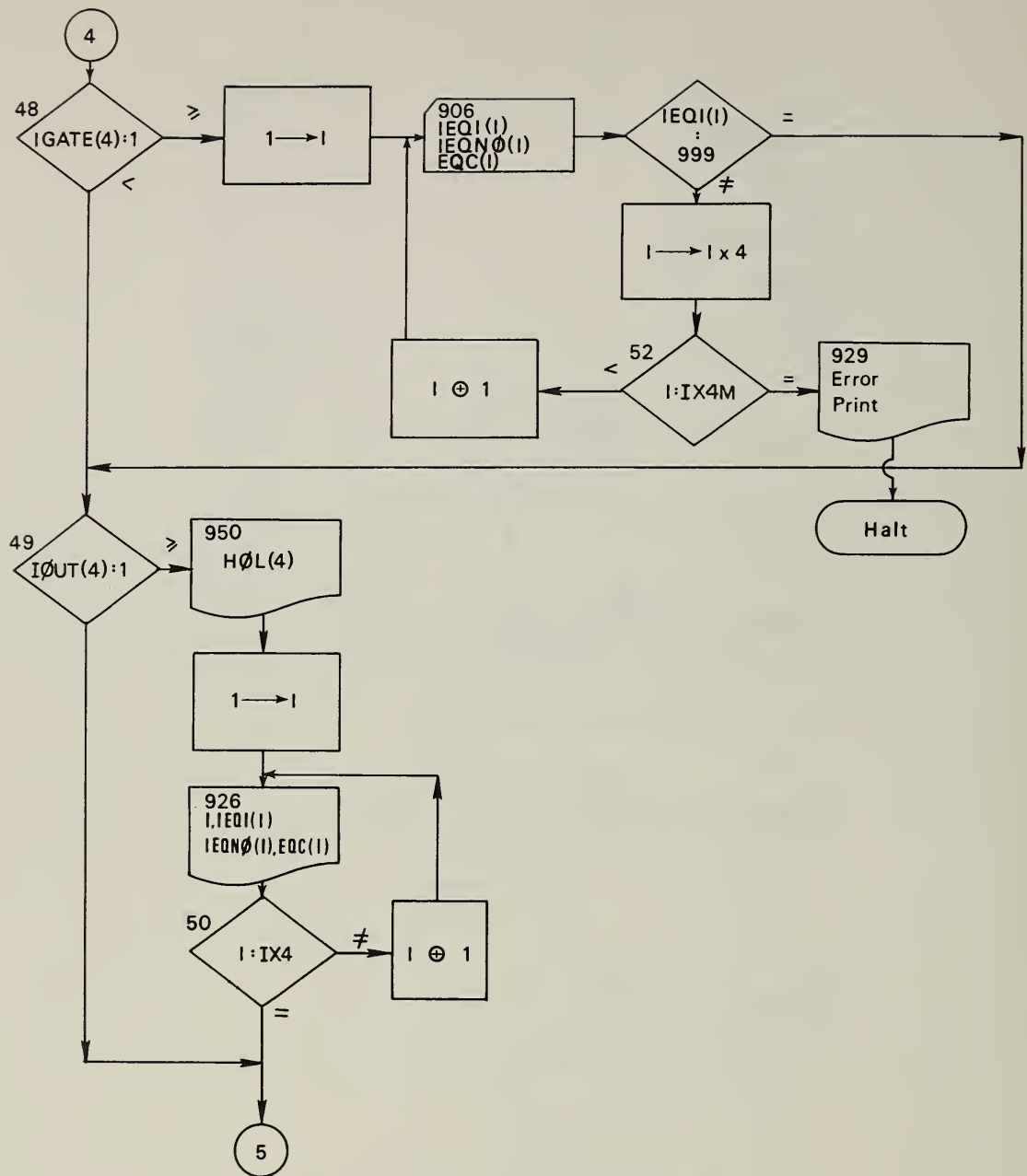
Subroutine A is entered and control is returned to A_1

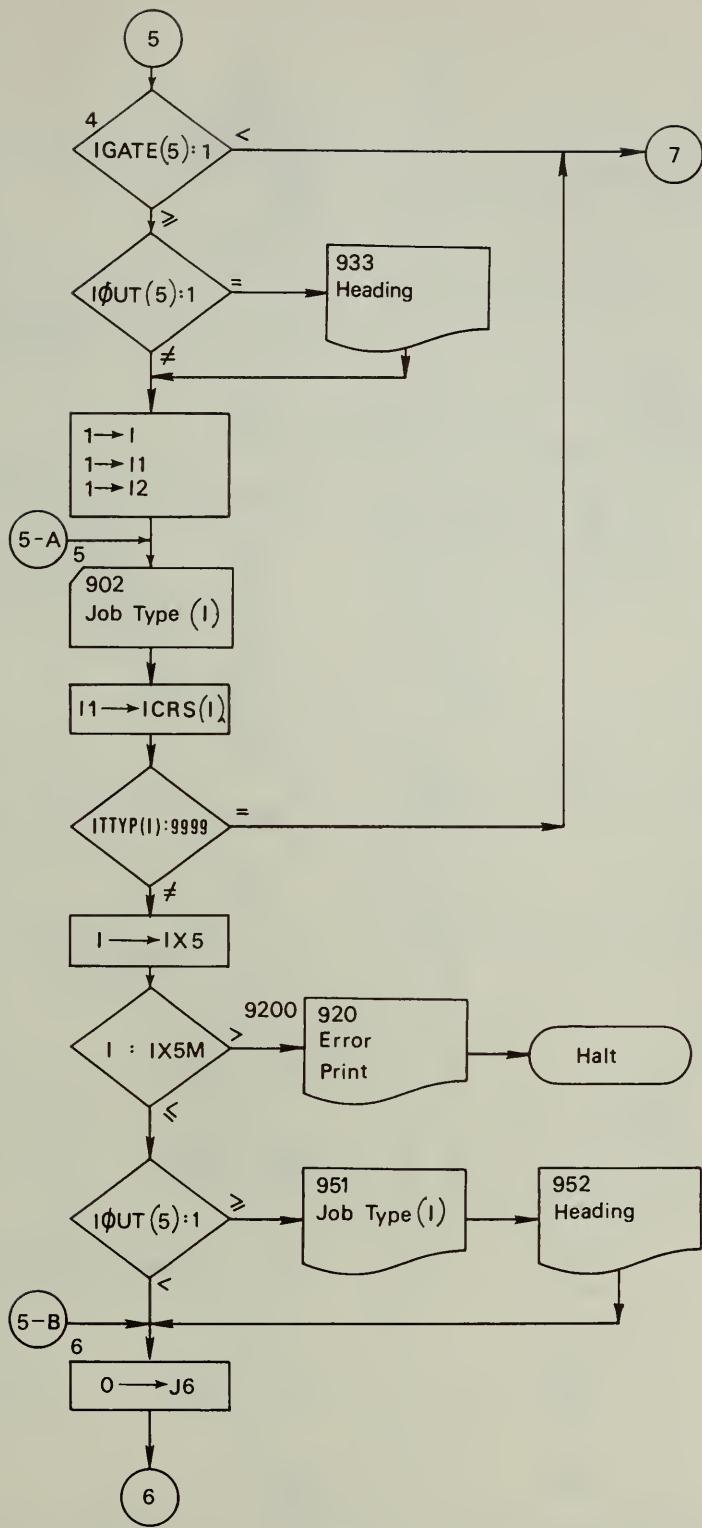
Variables beginning with A–H and ϕ –Z are real;
those beginning with I–N are integer

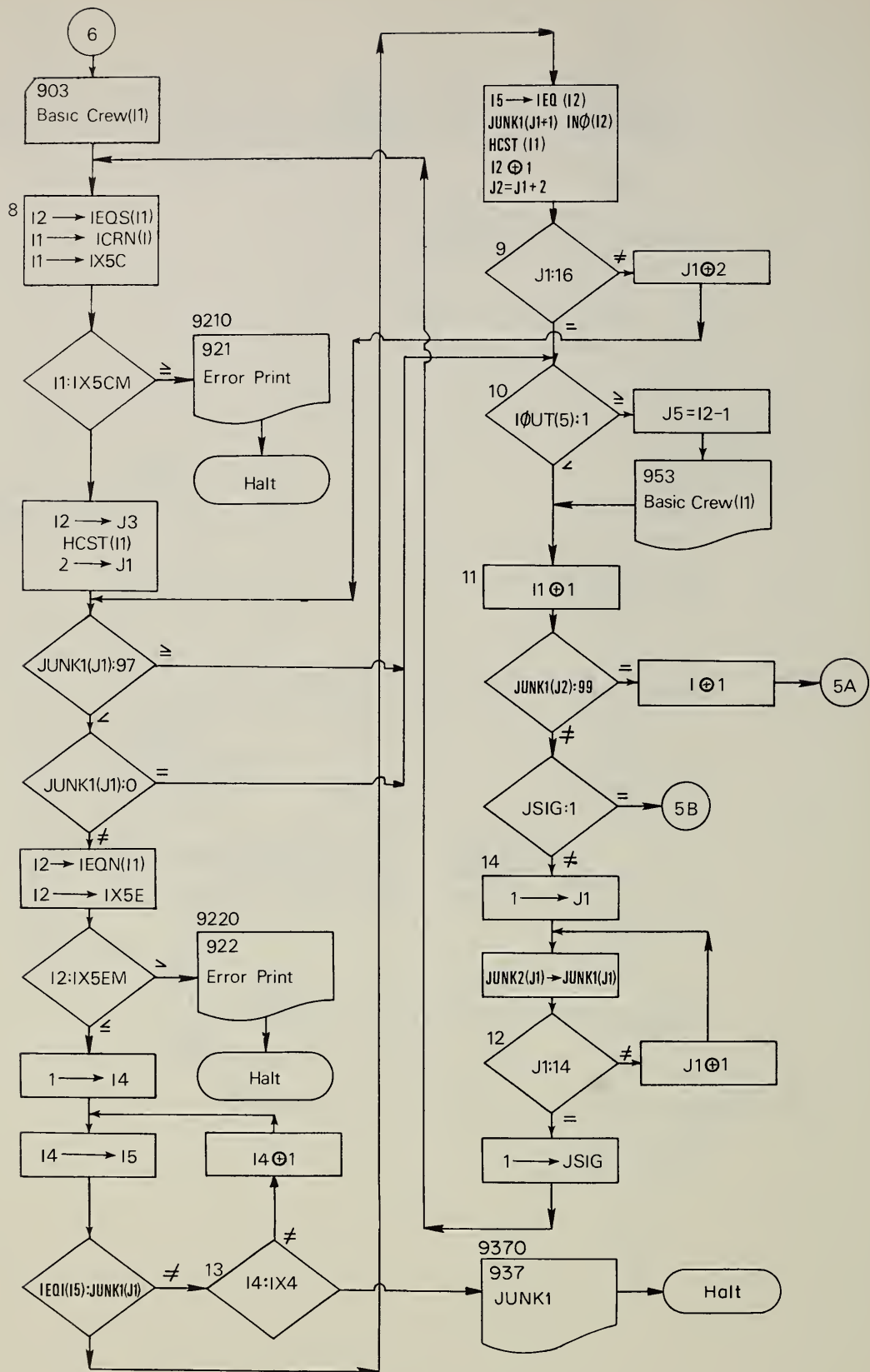


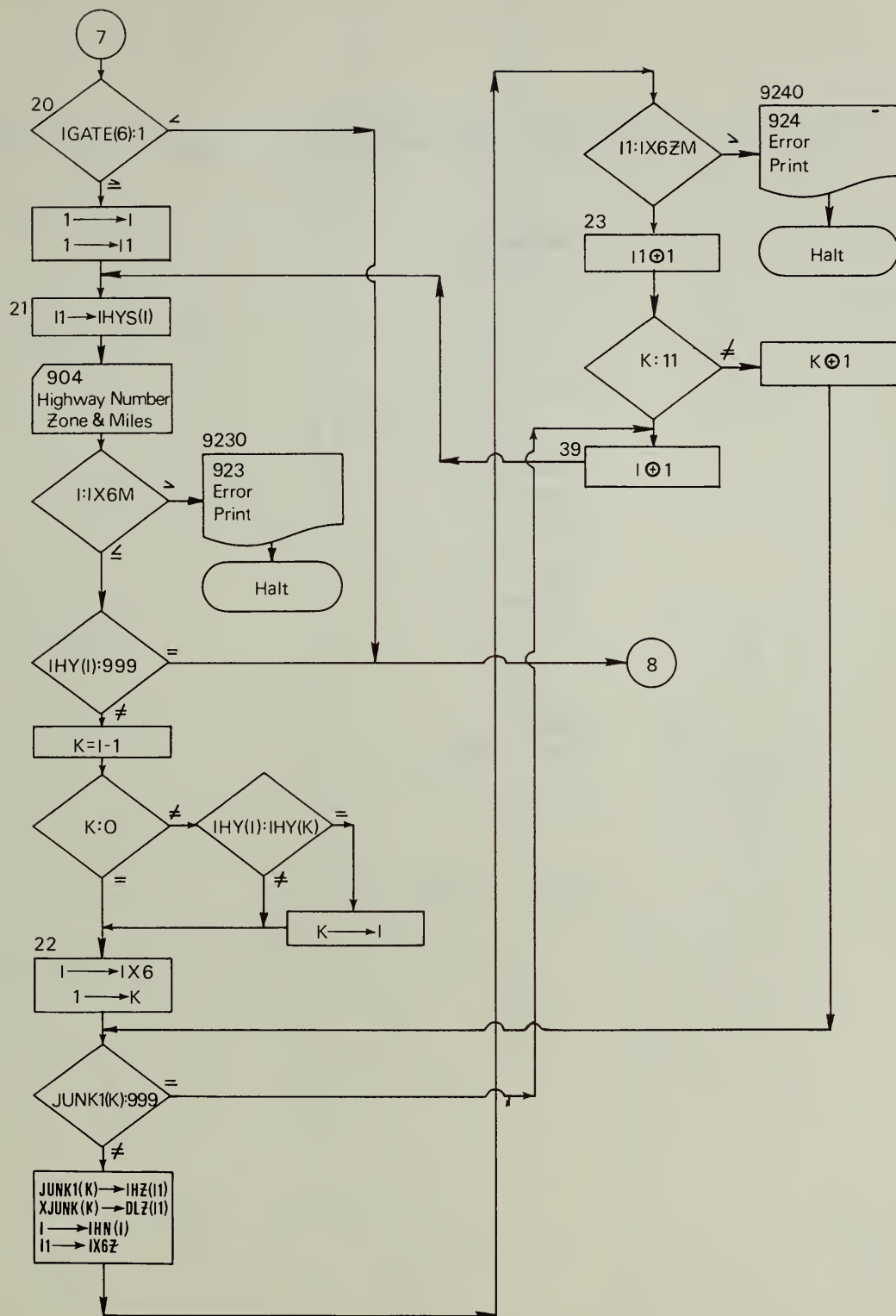


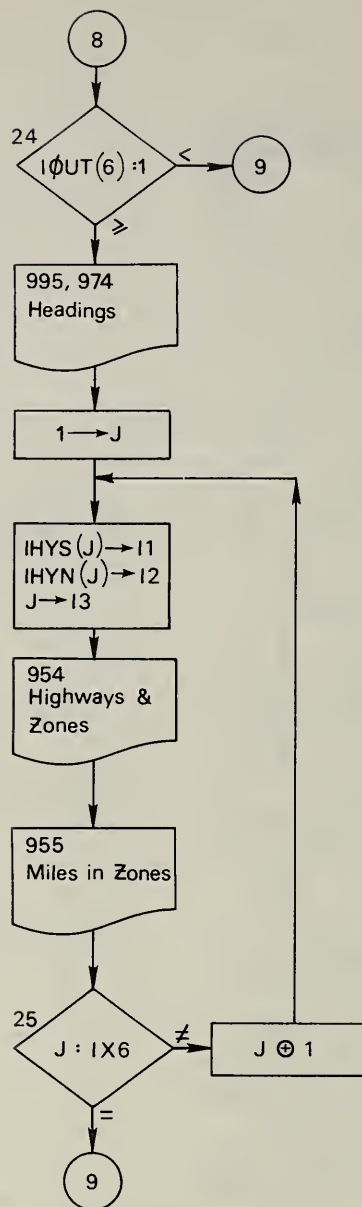


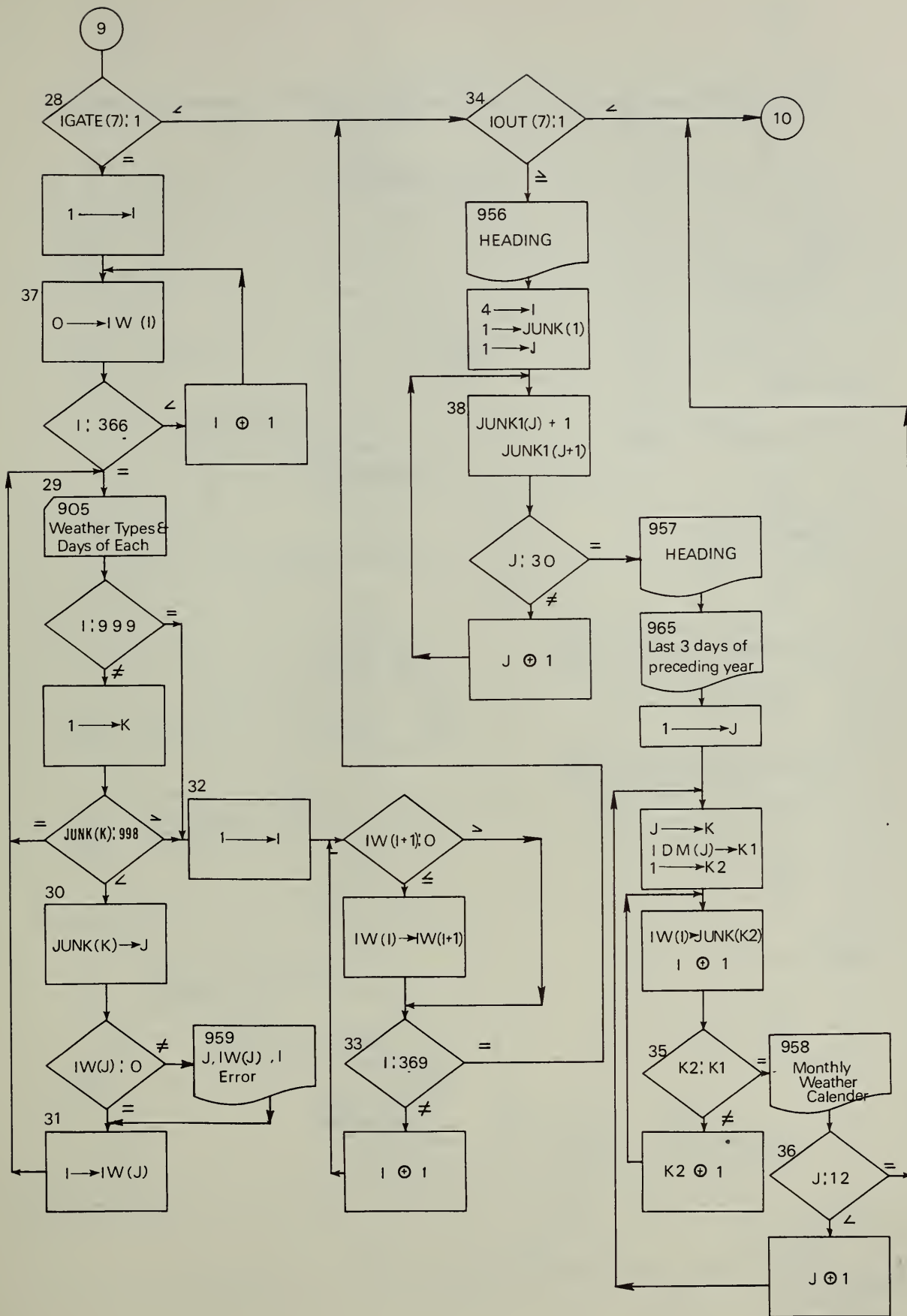


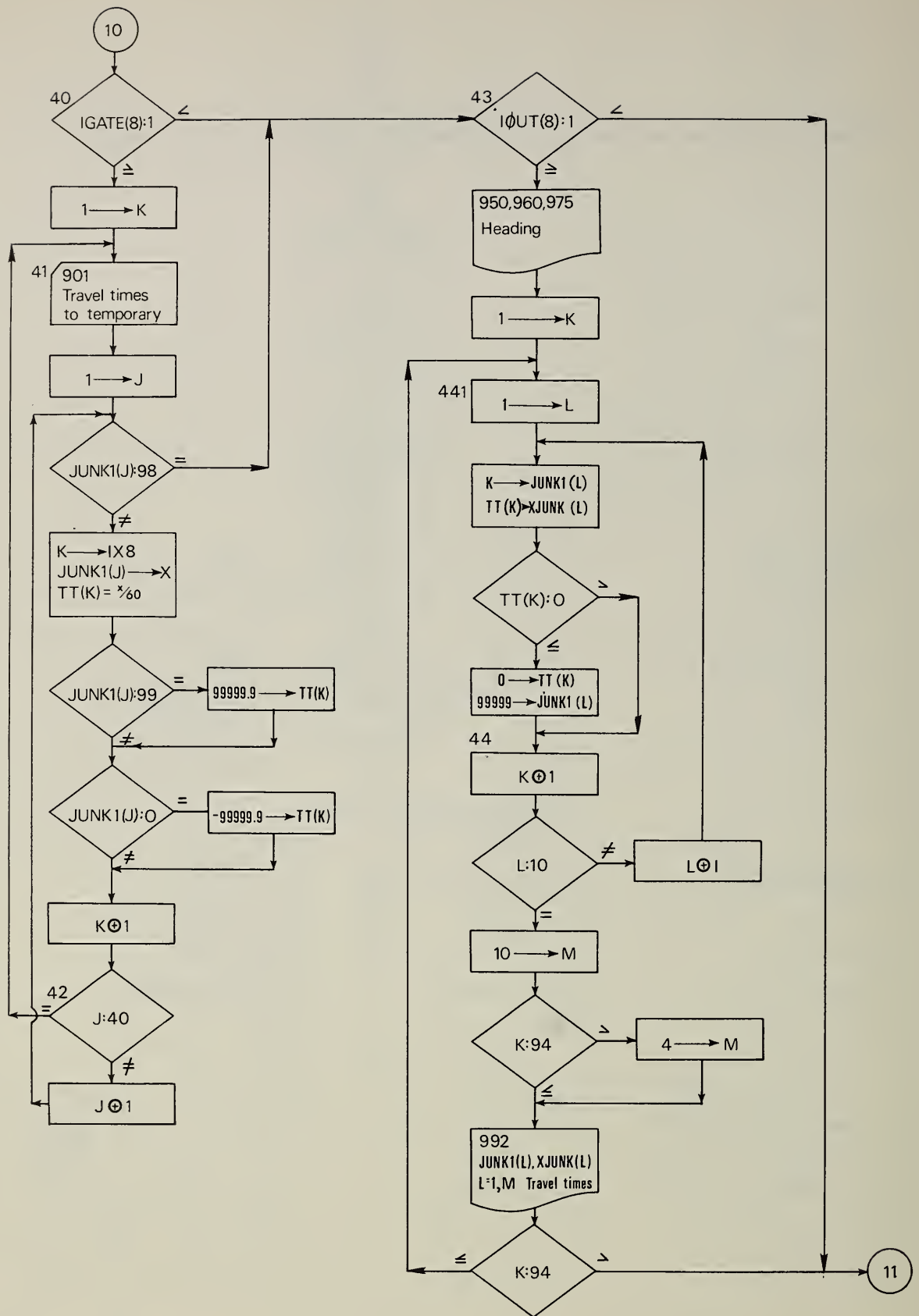


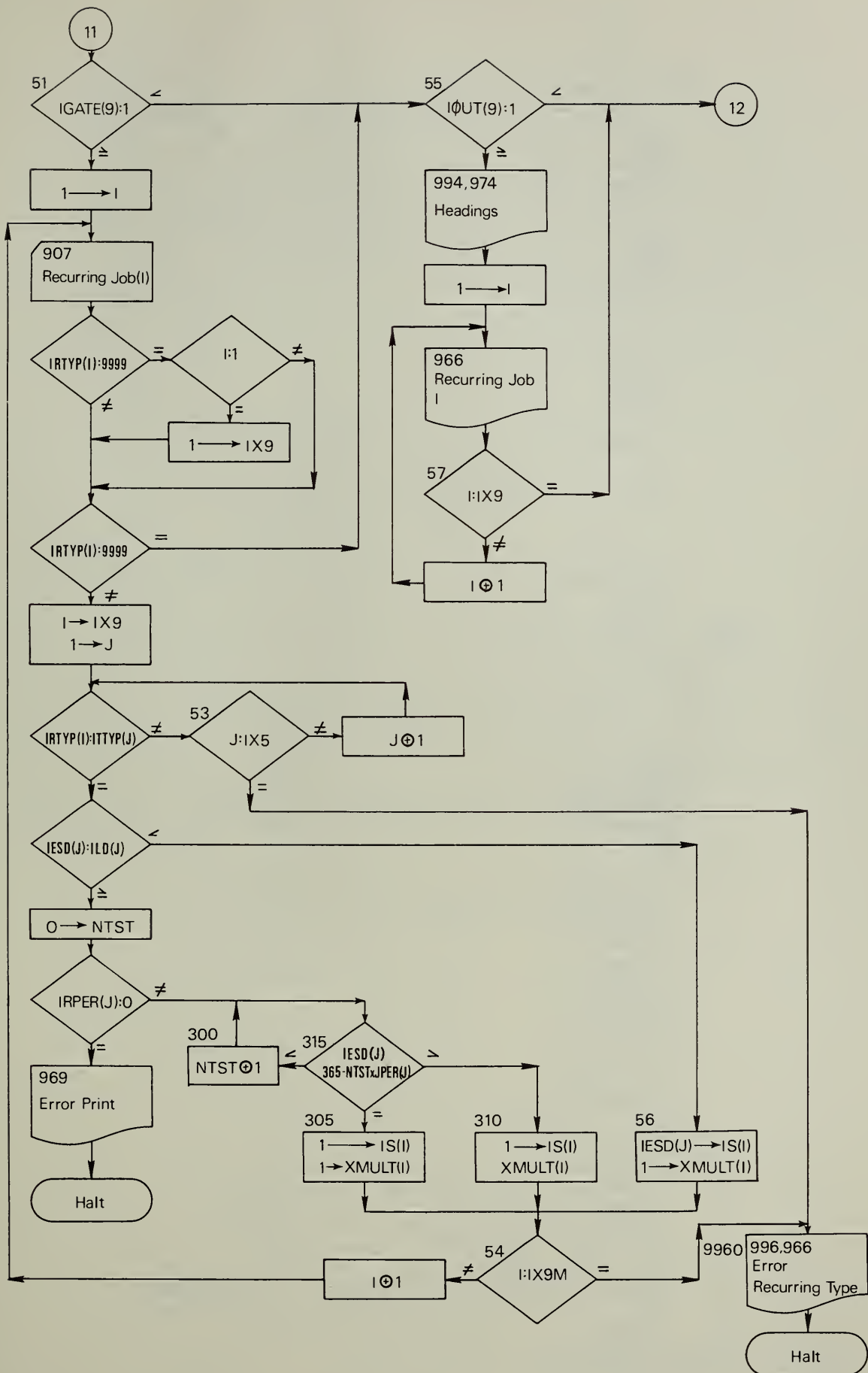


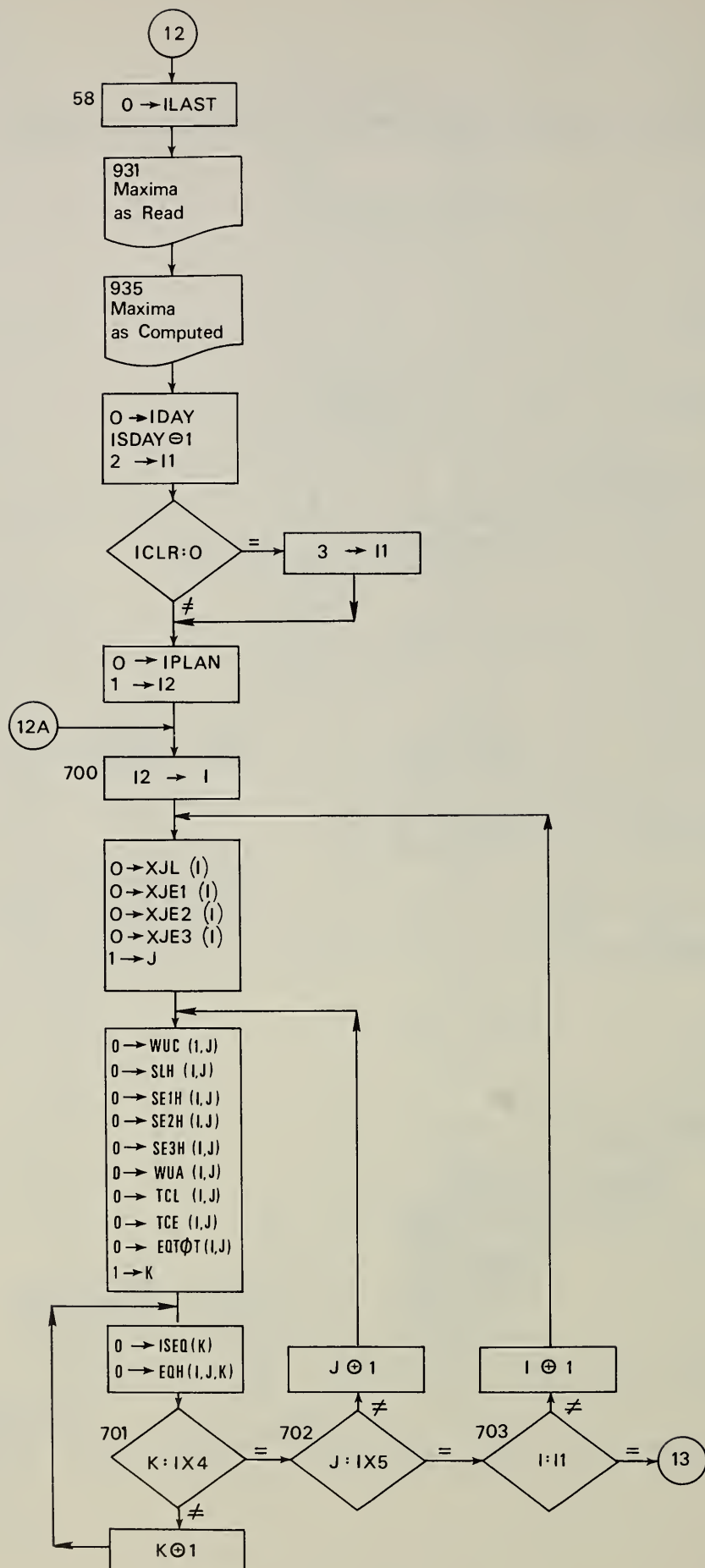


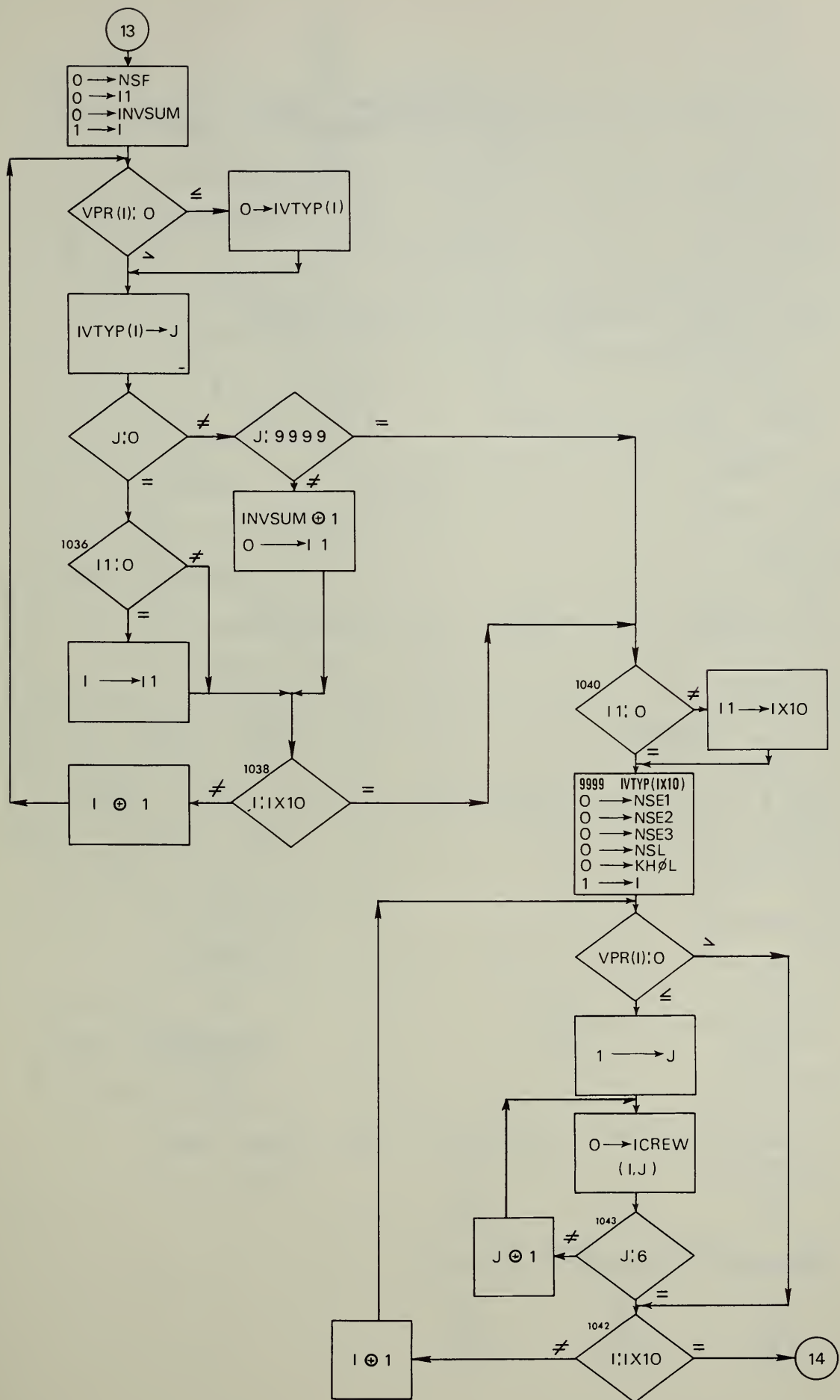


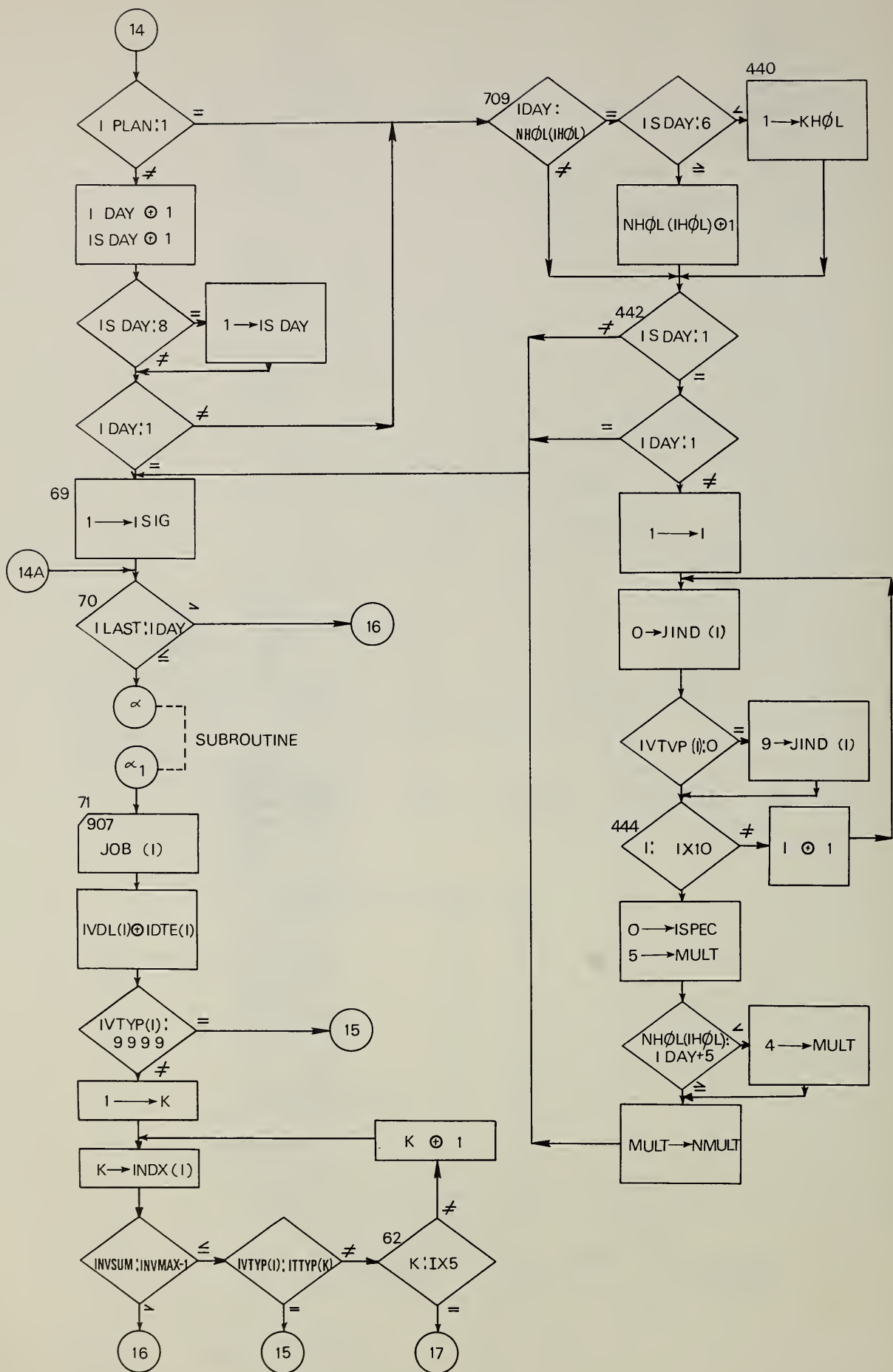


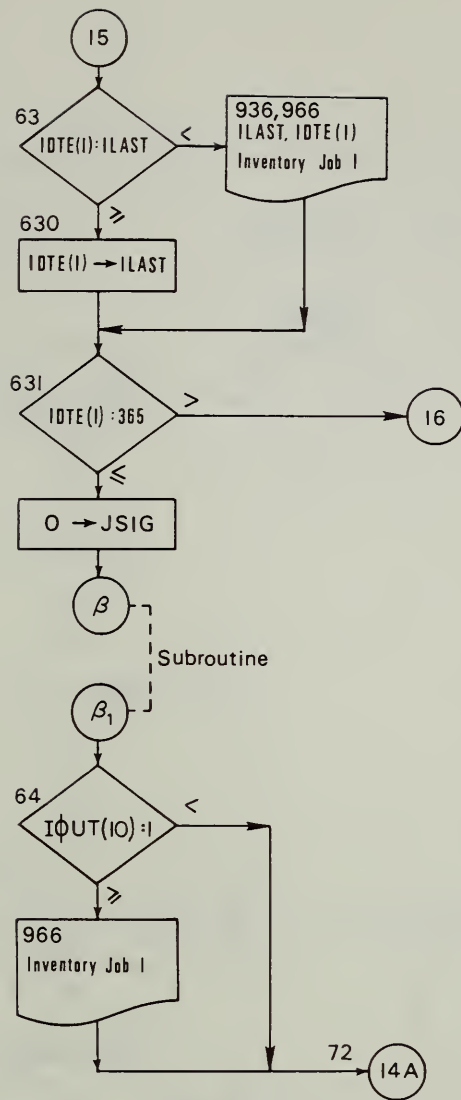


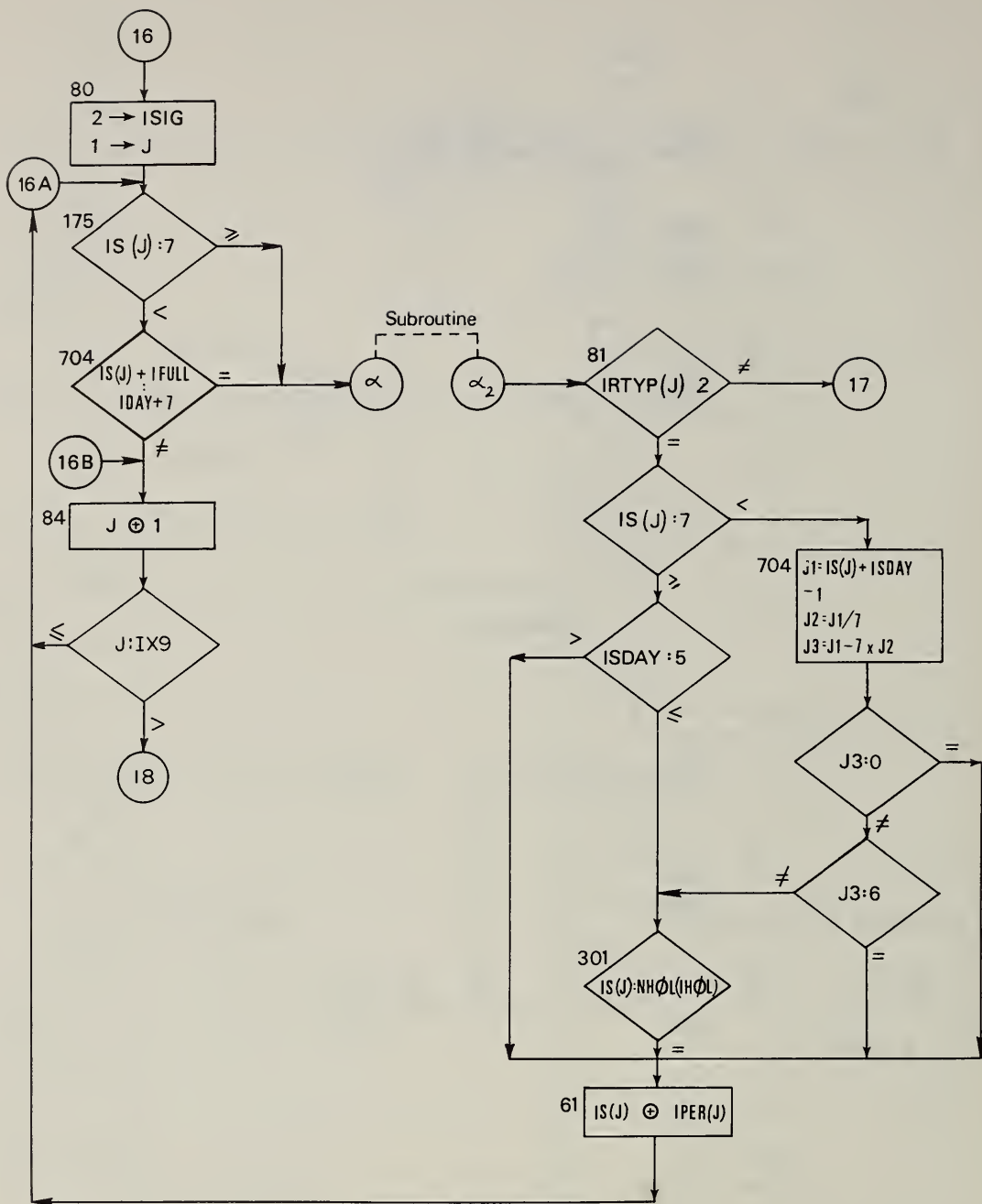


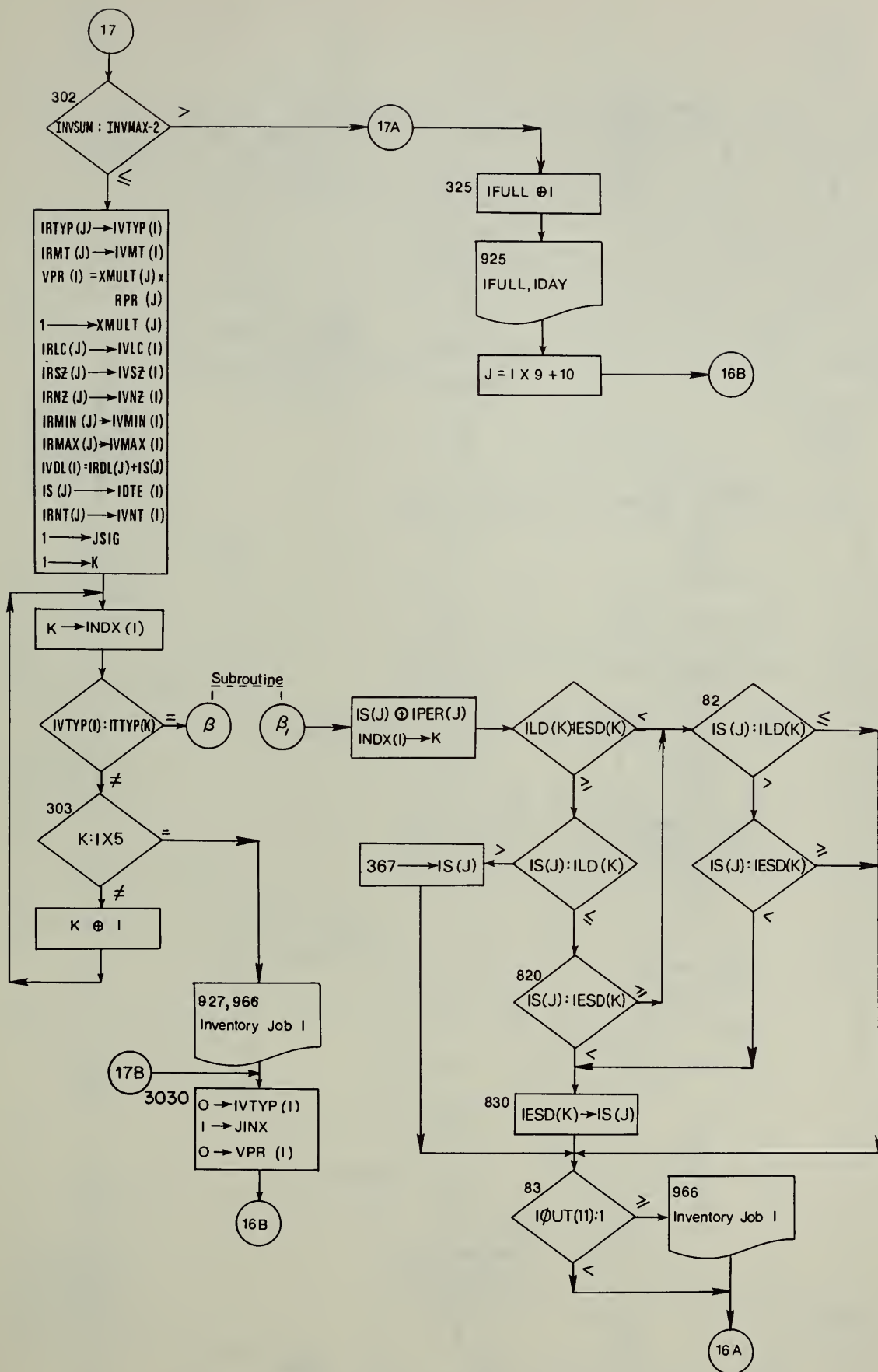


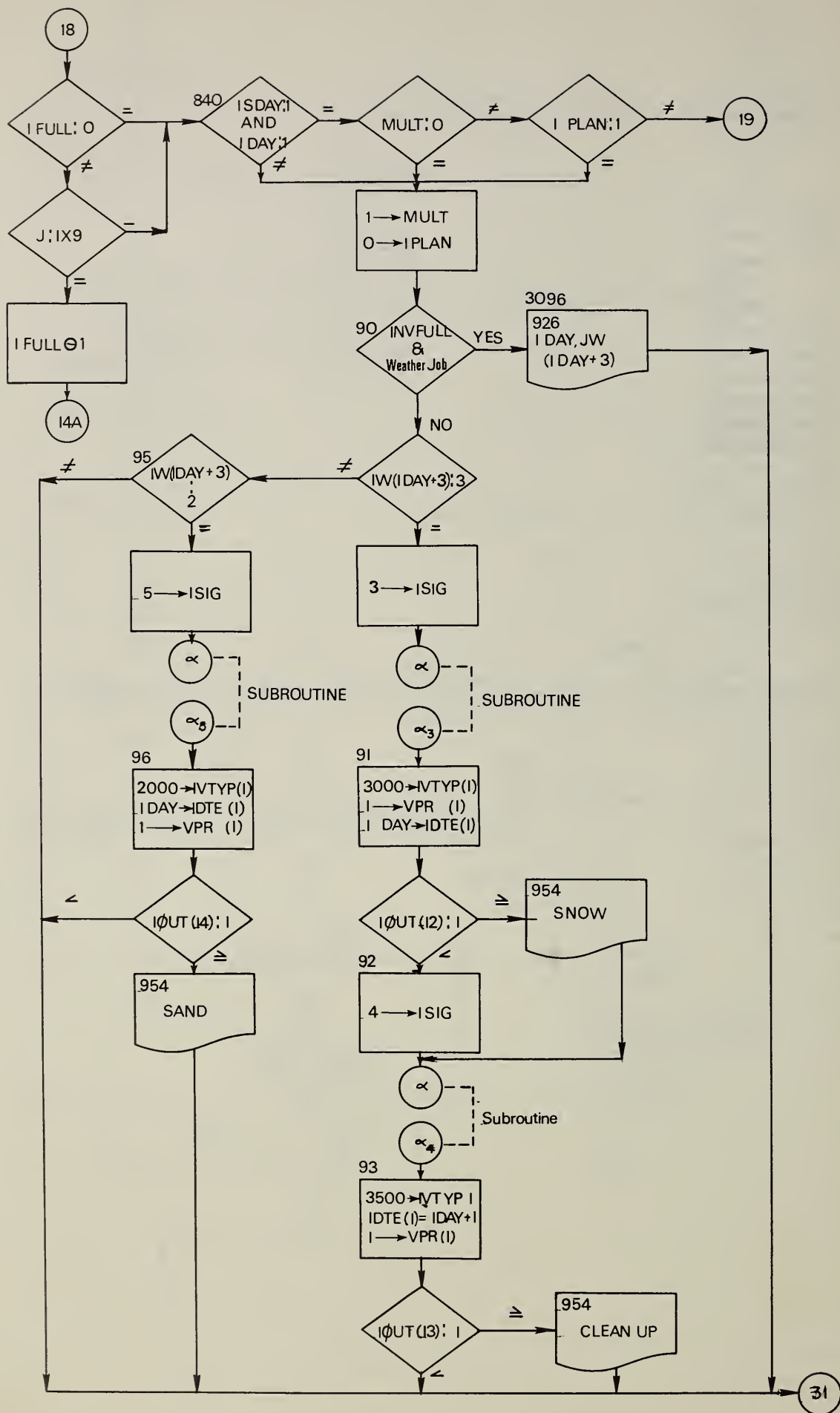


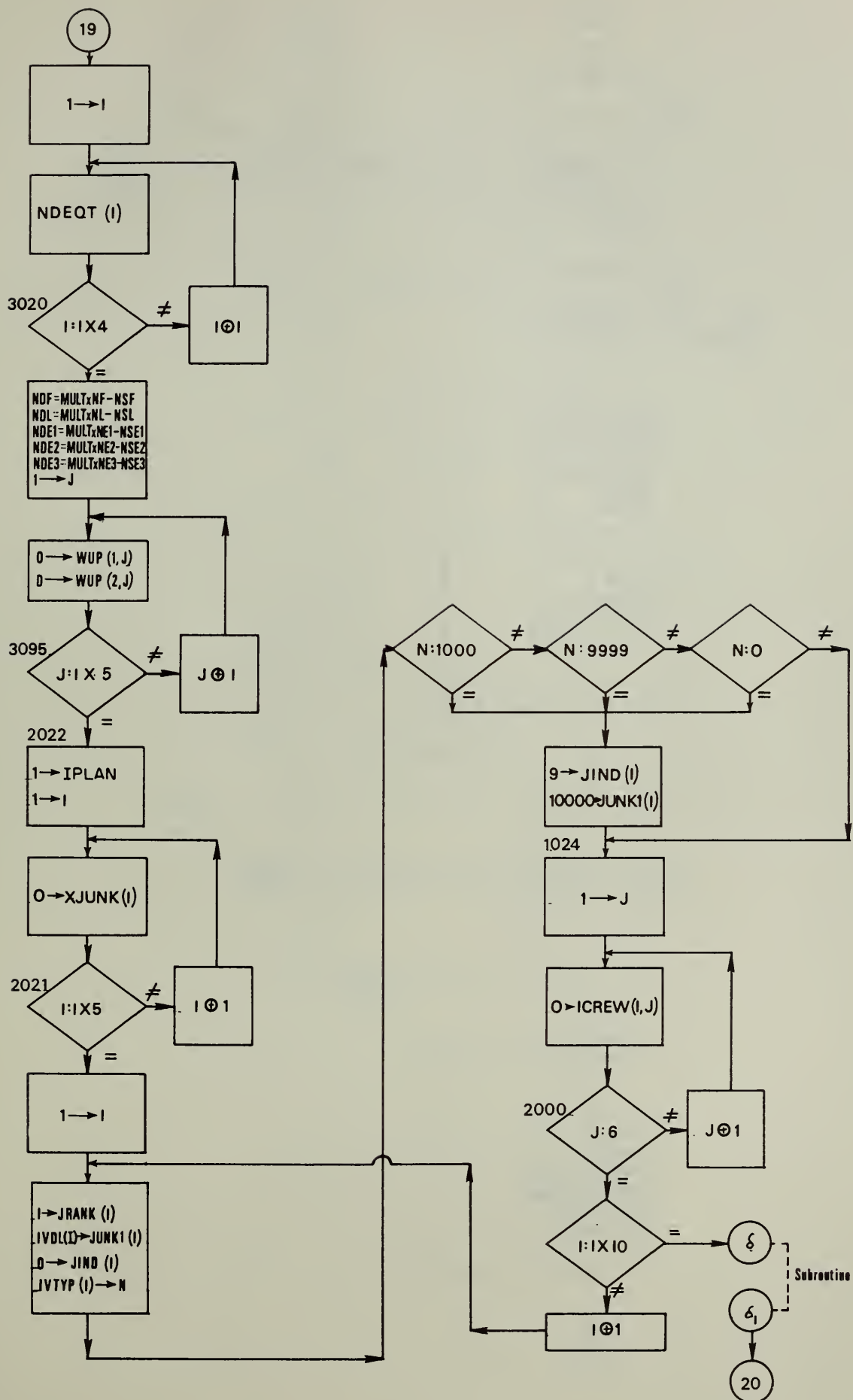


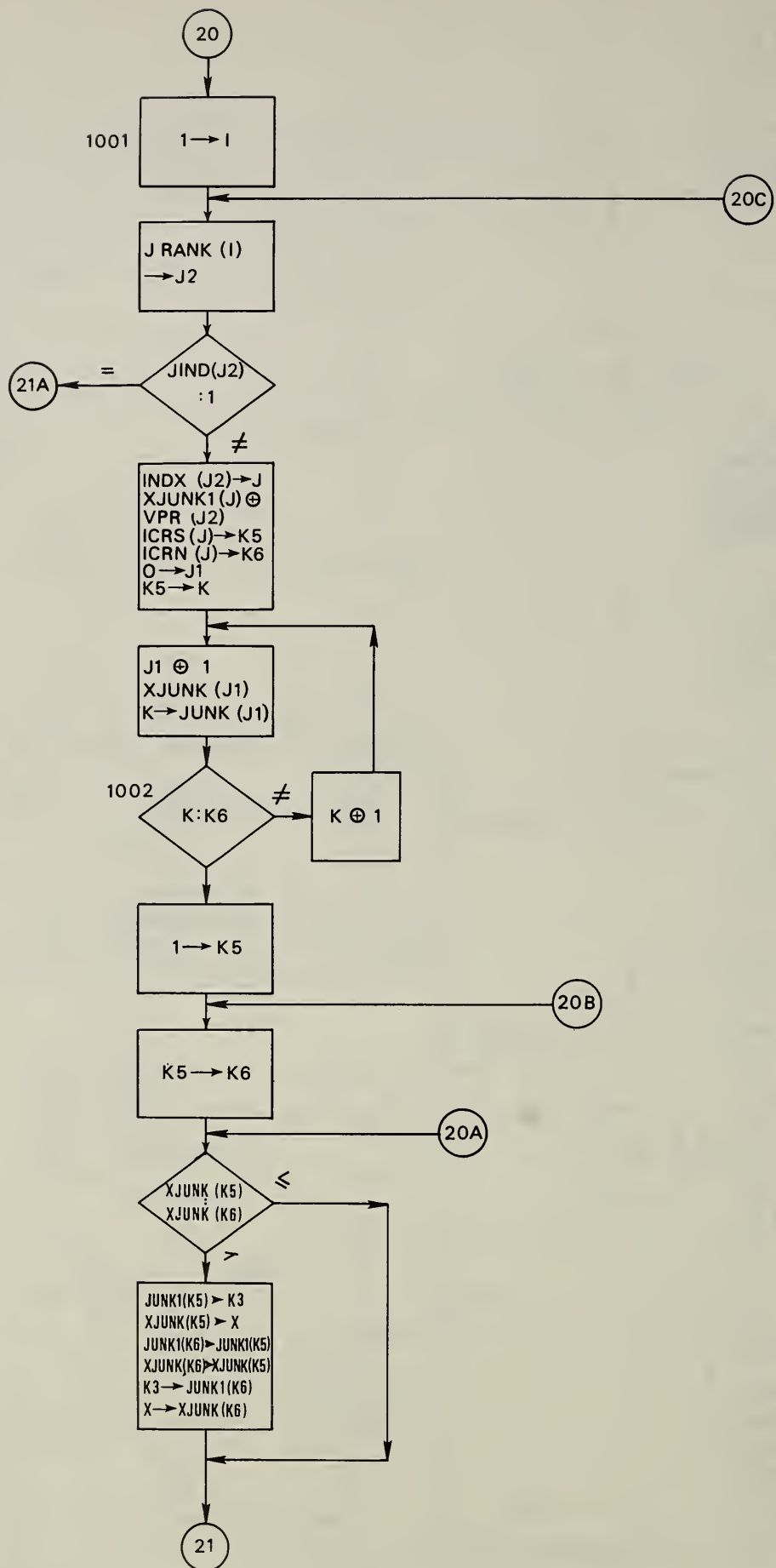


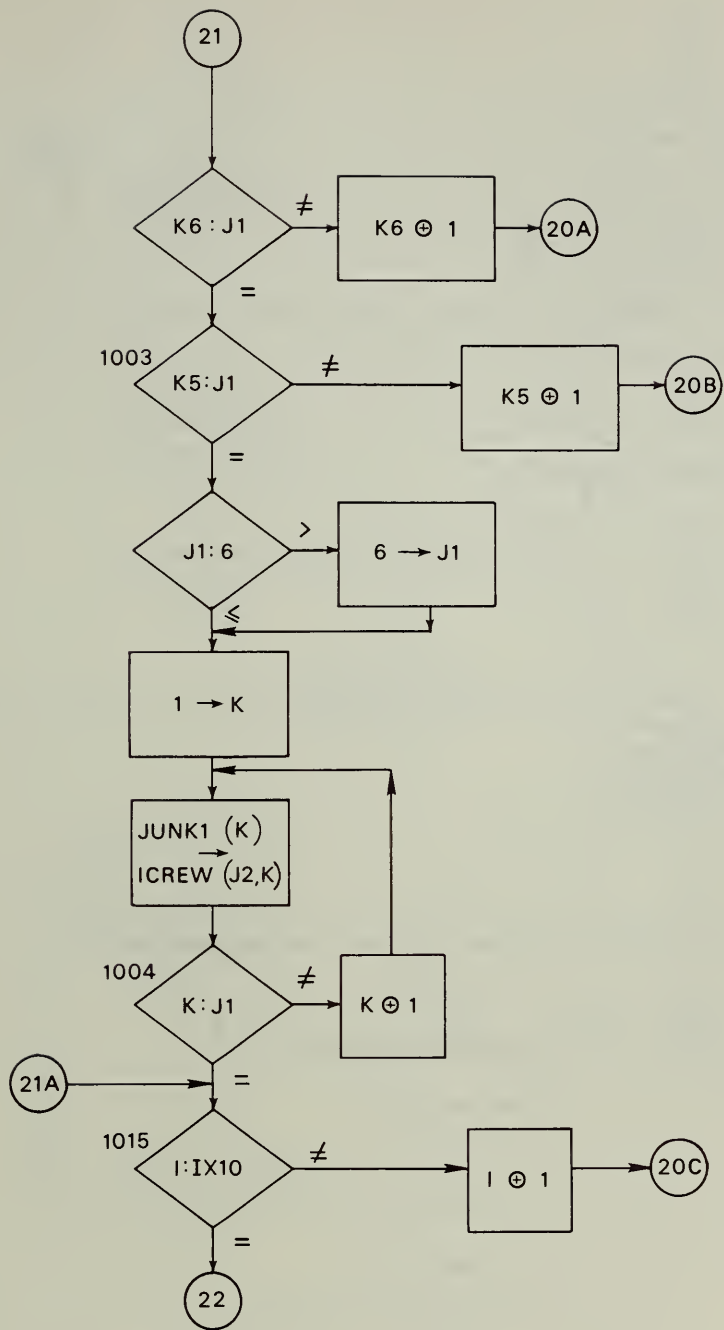


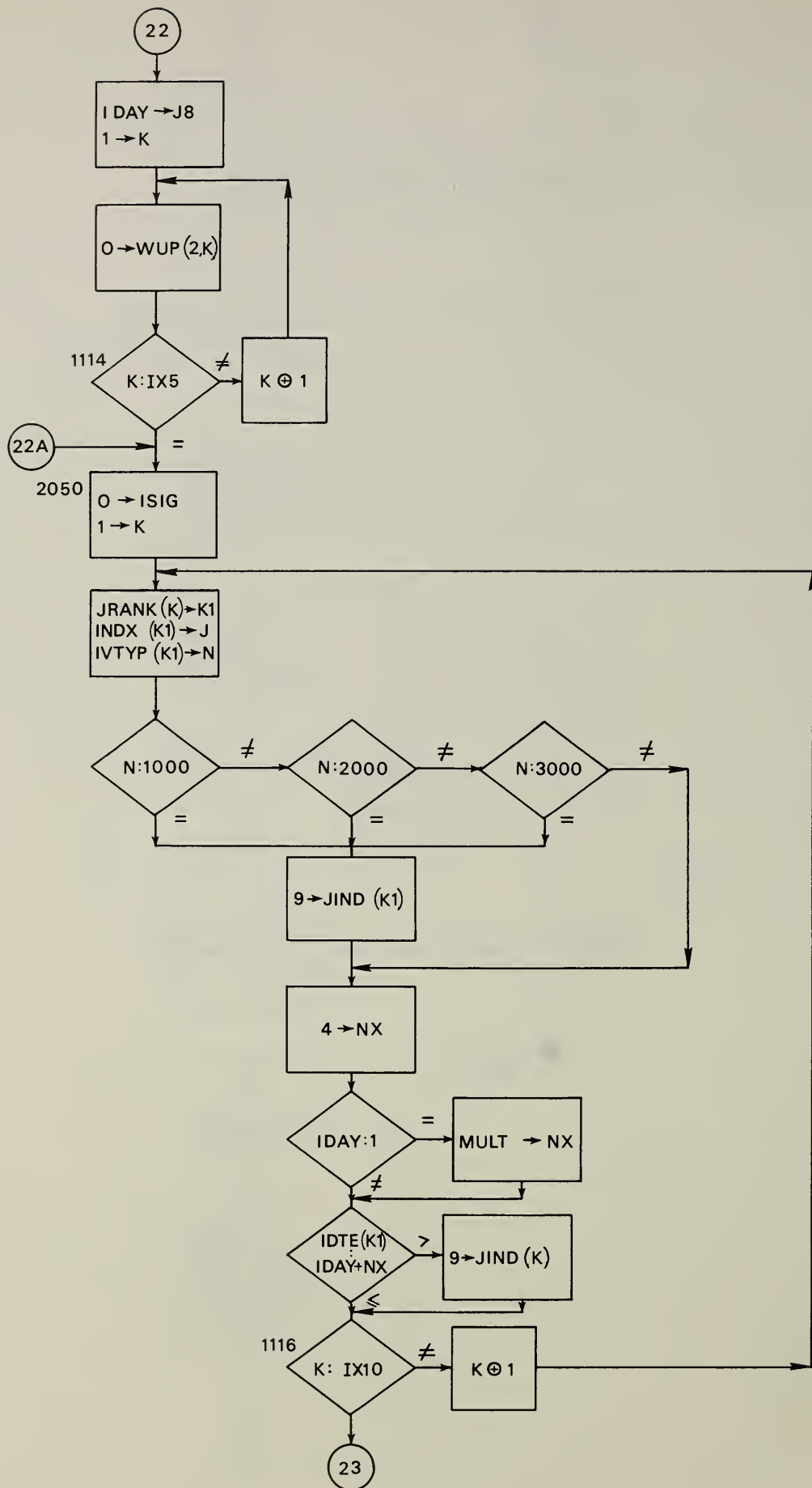


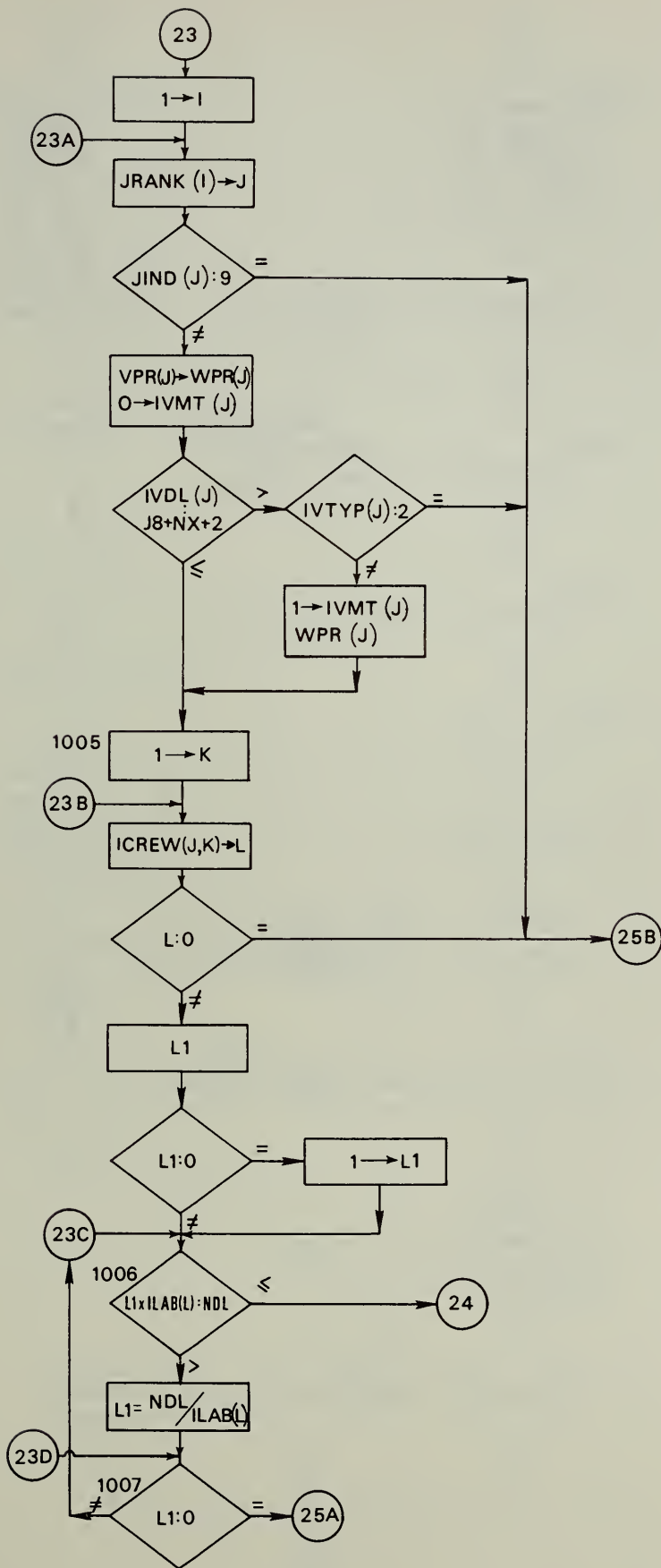


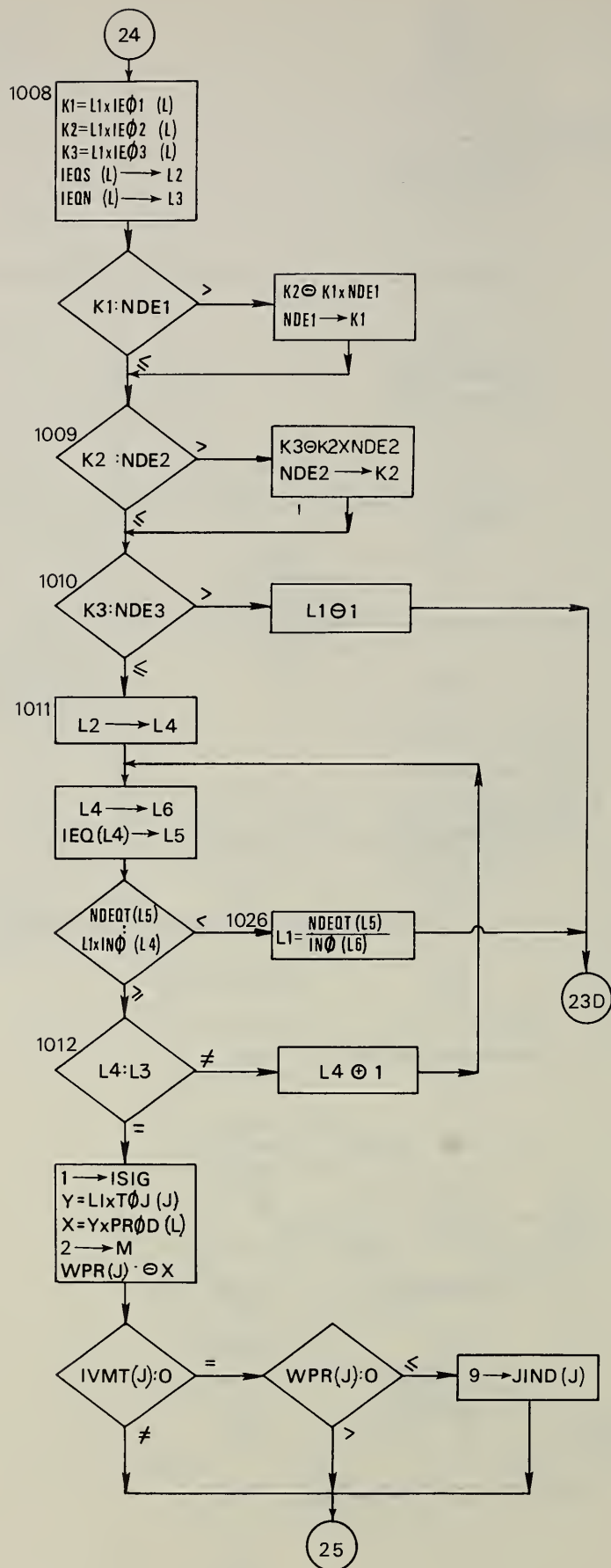


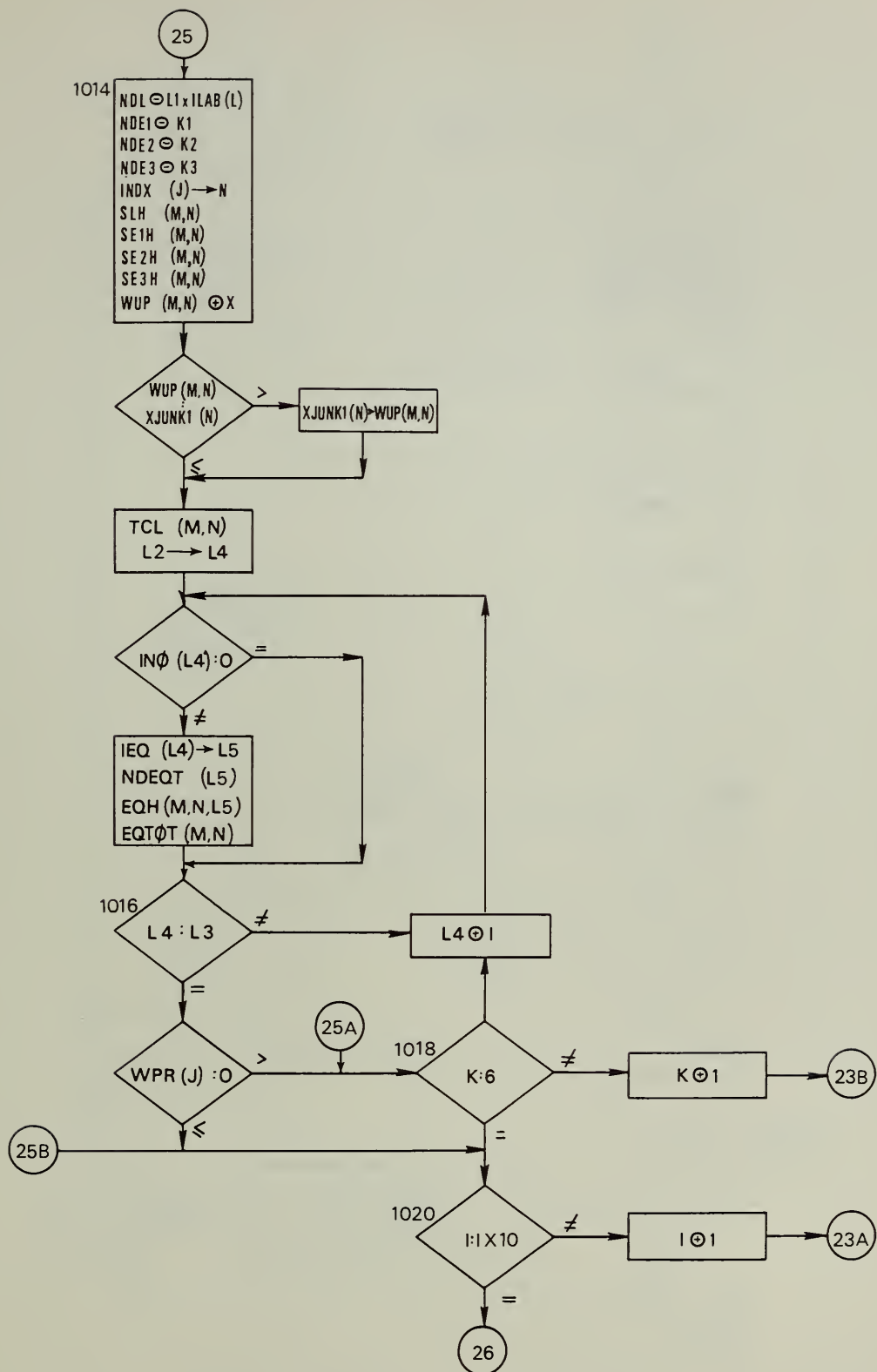


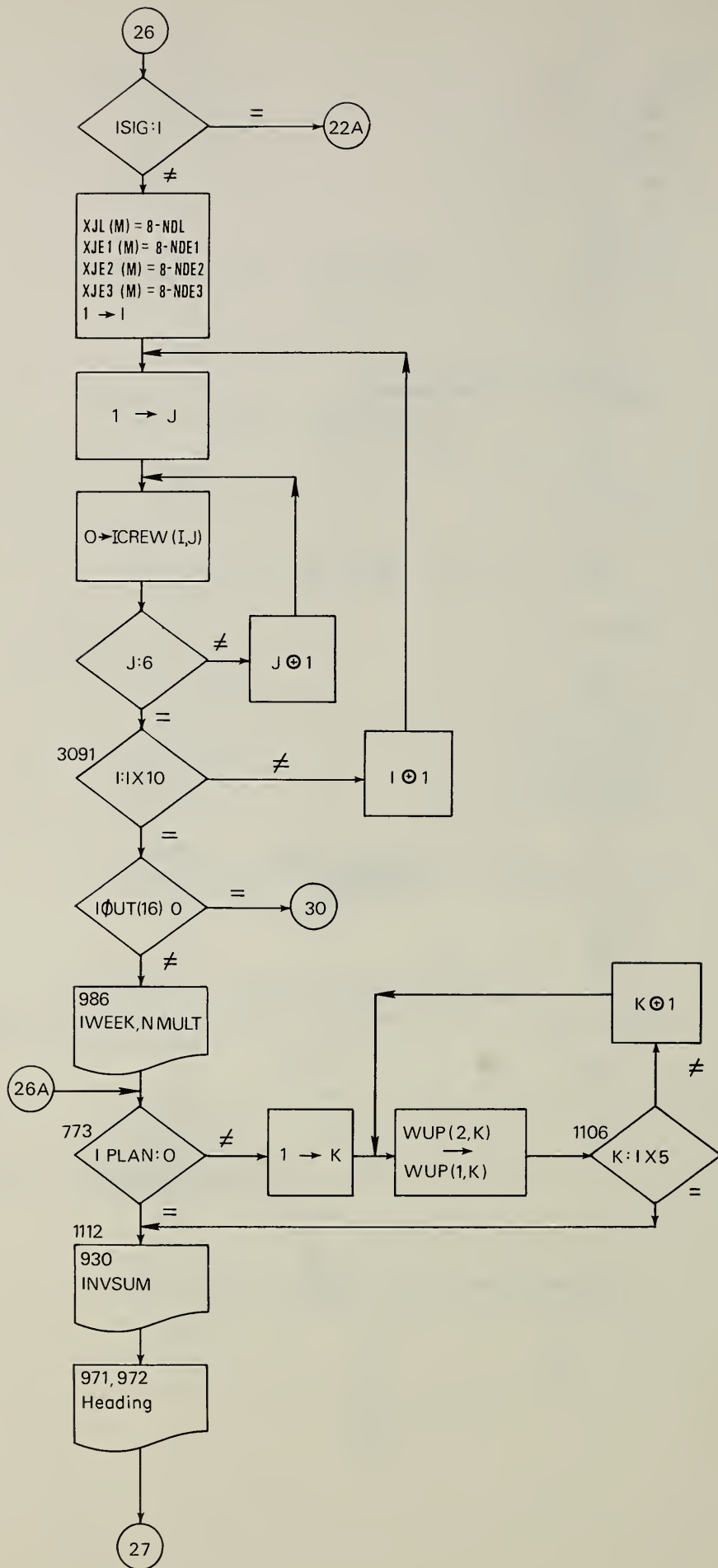


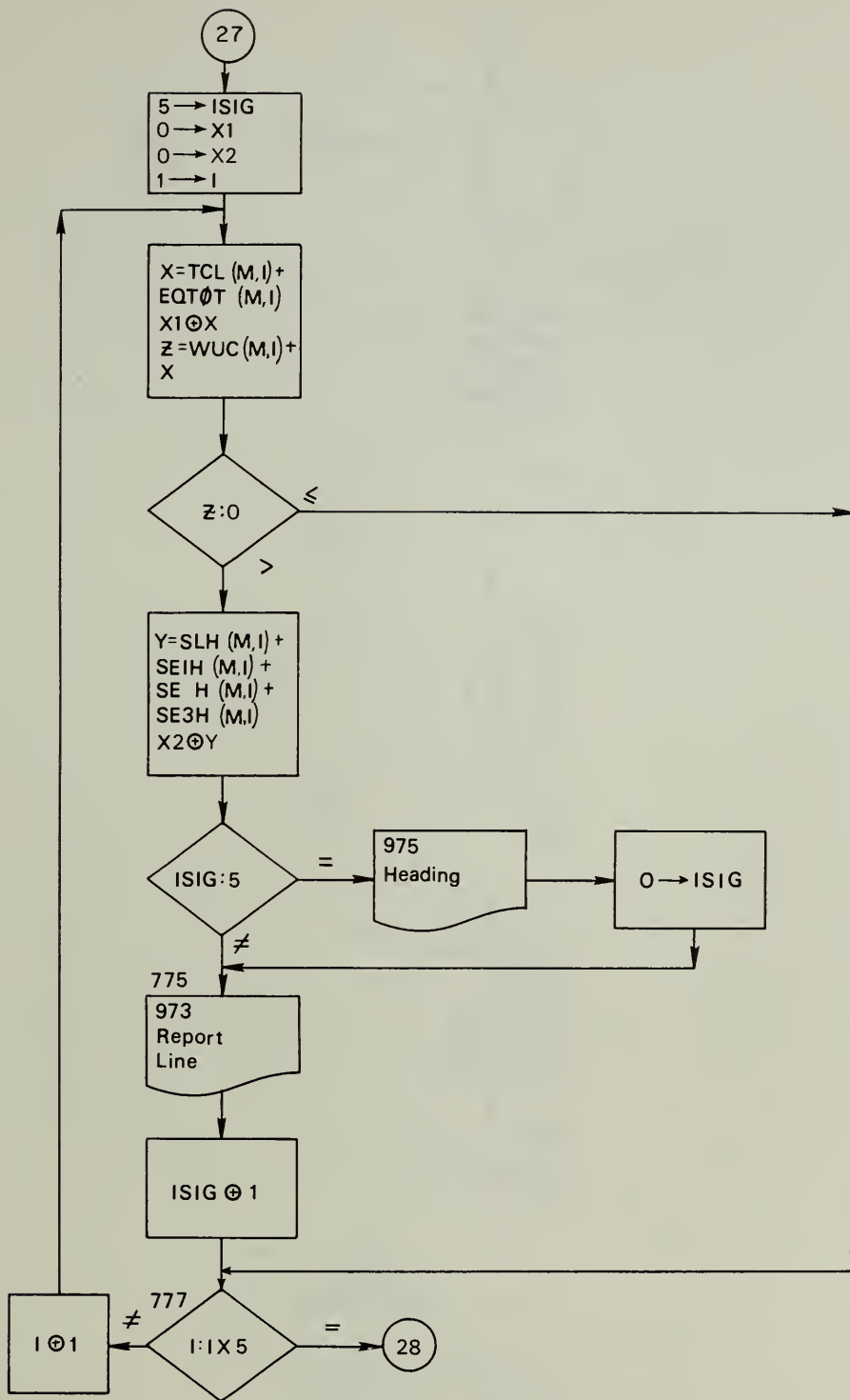


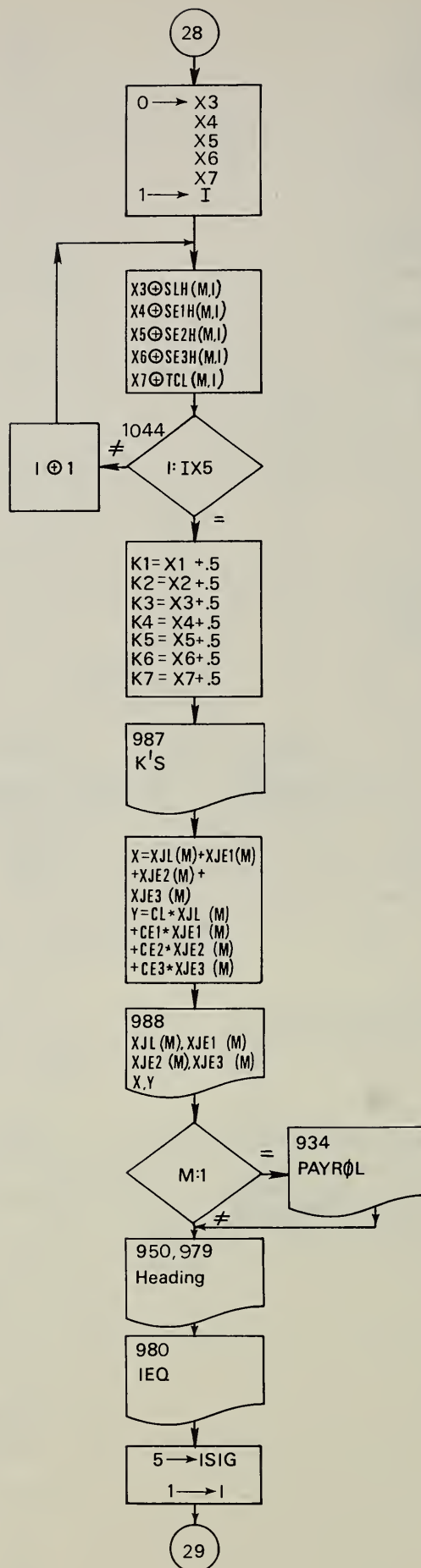


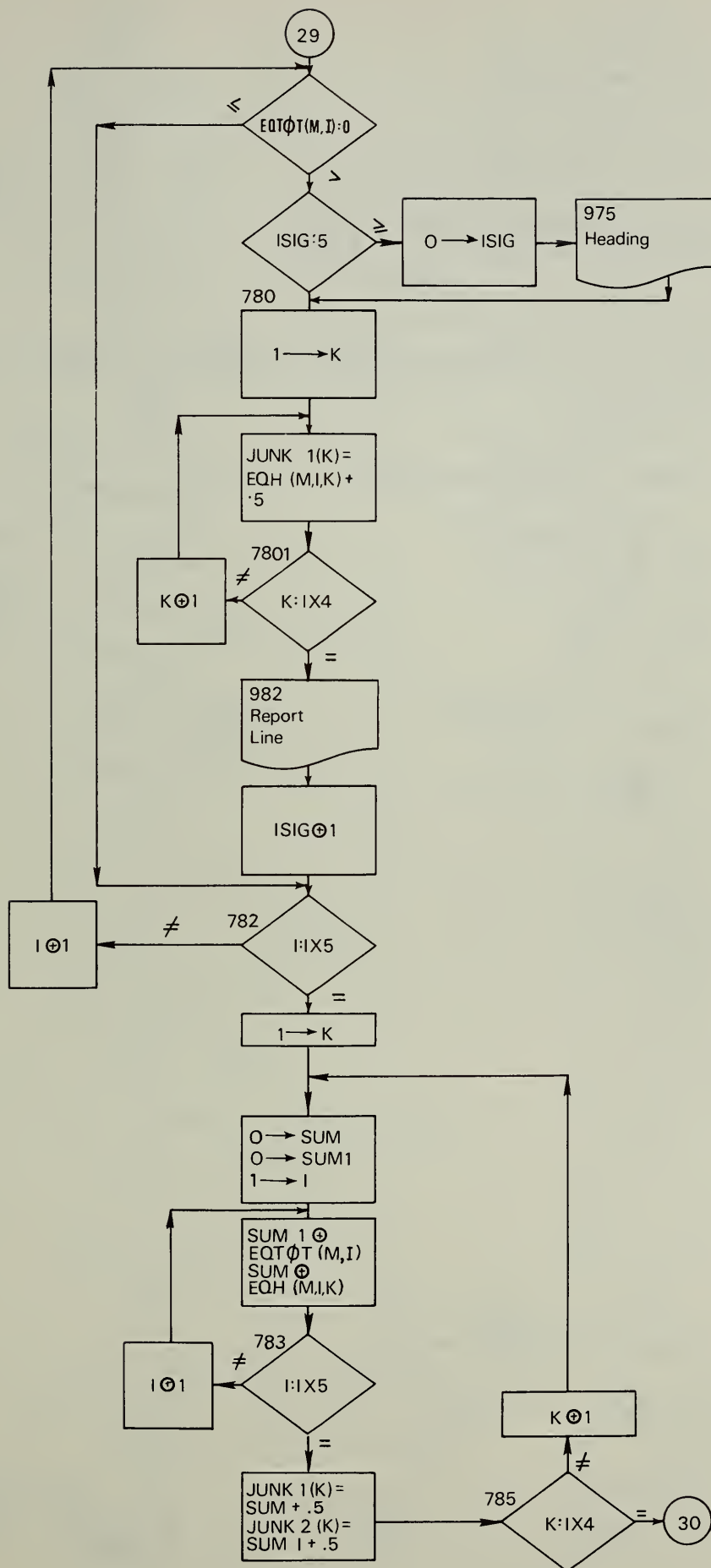


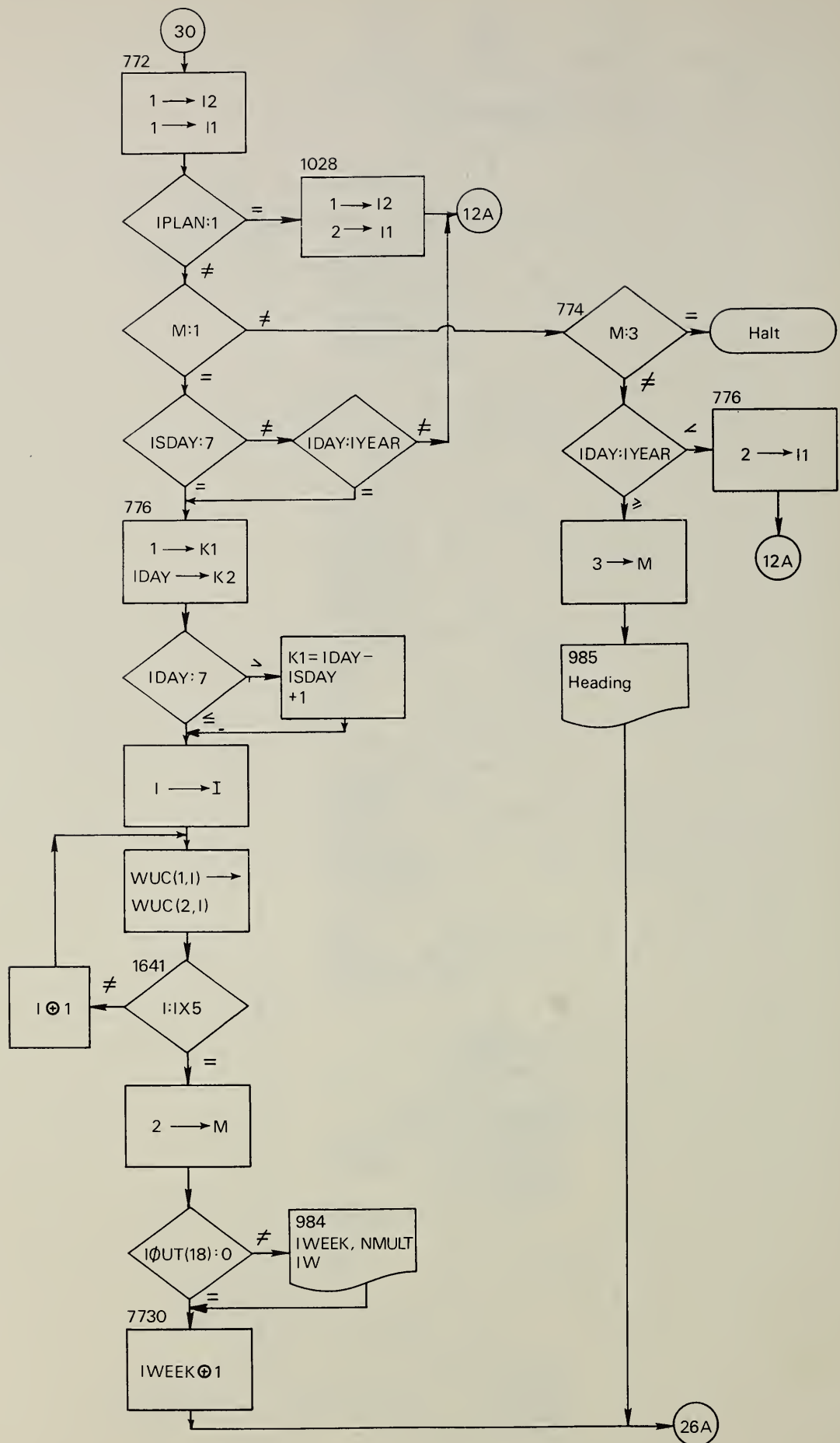


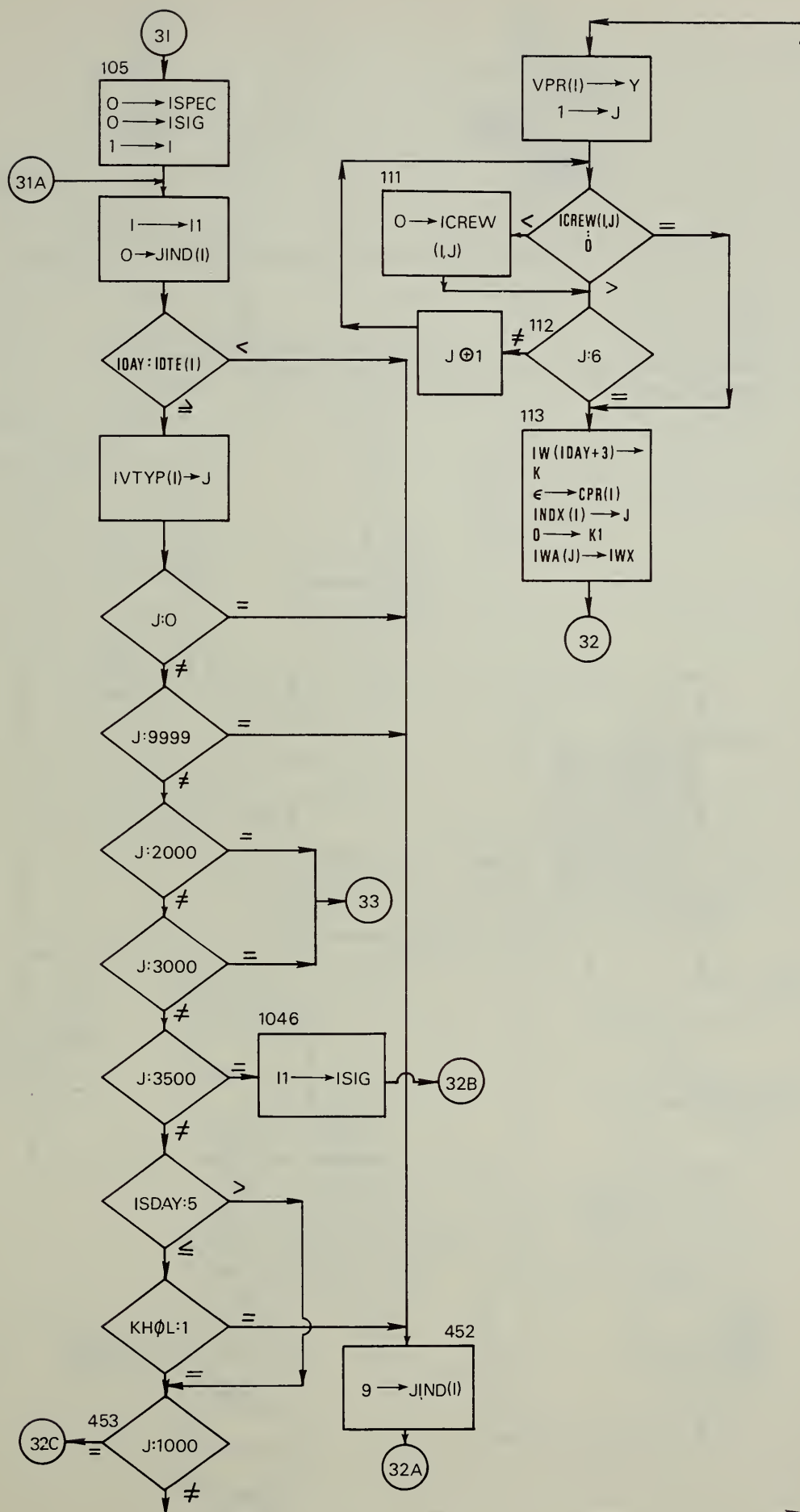


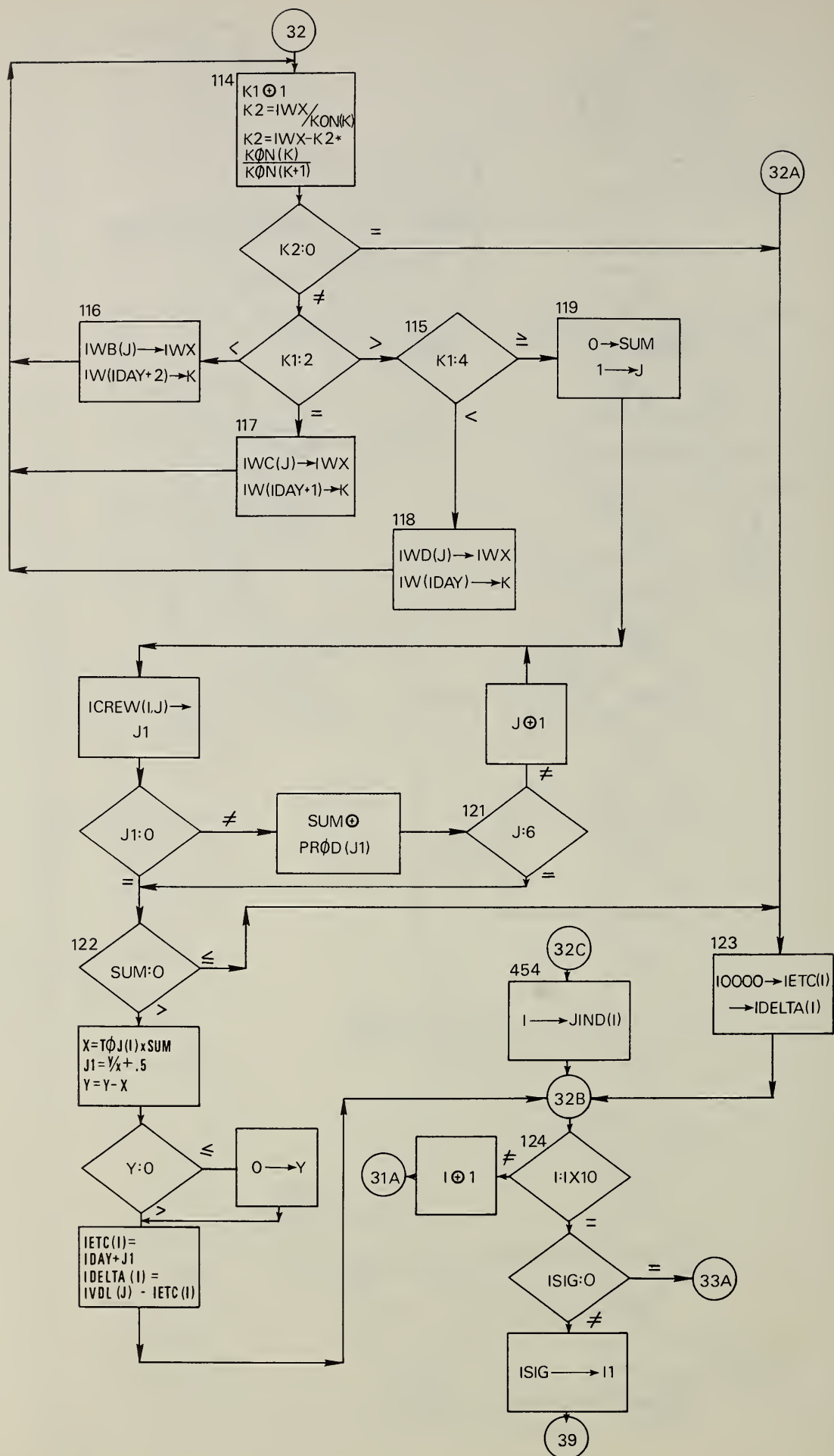


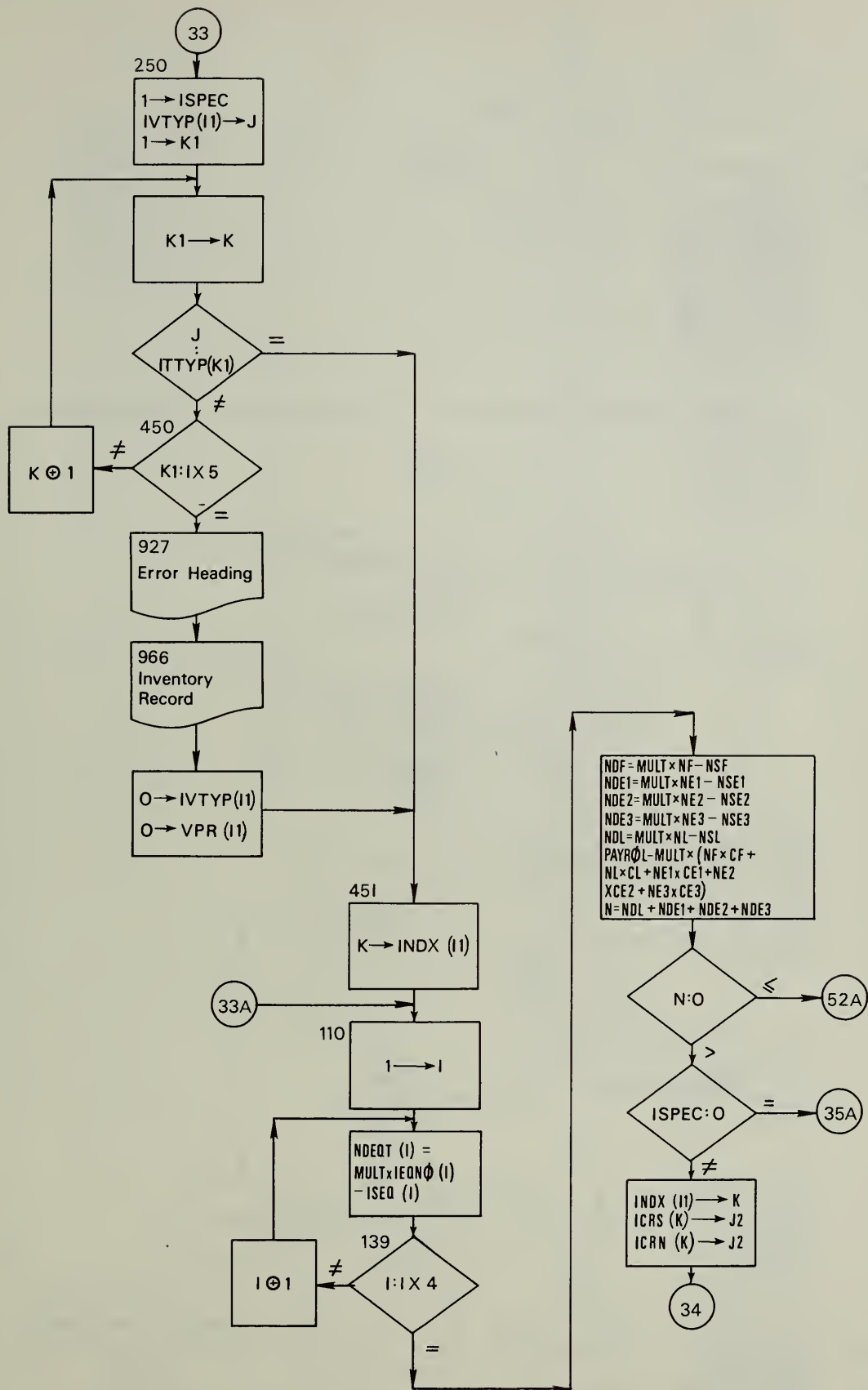


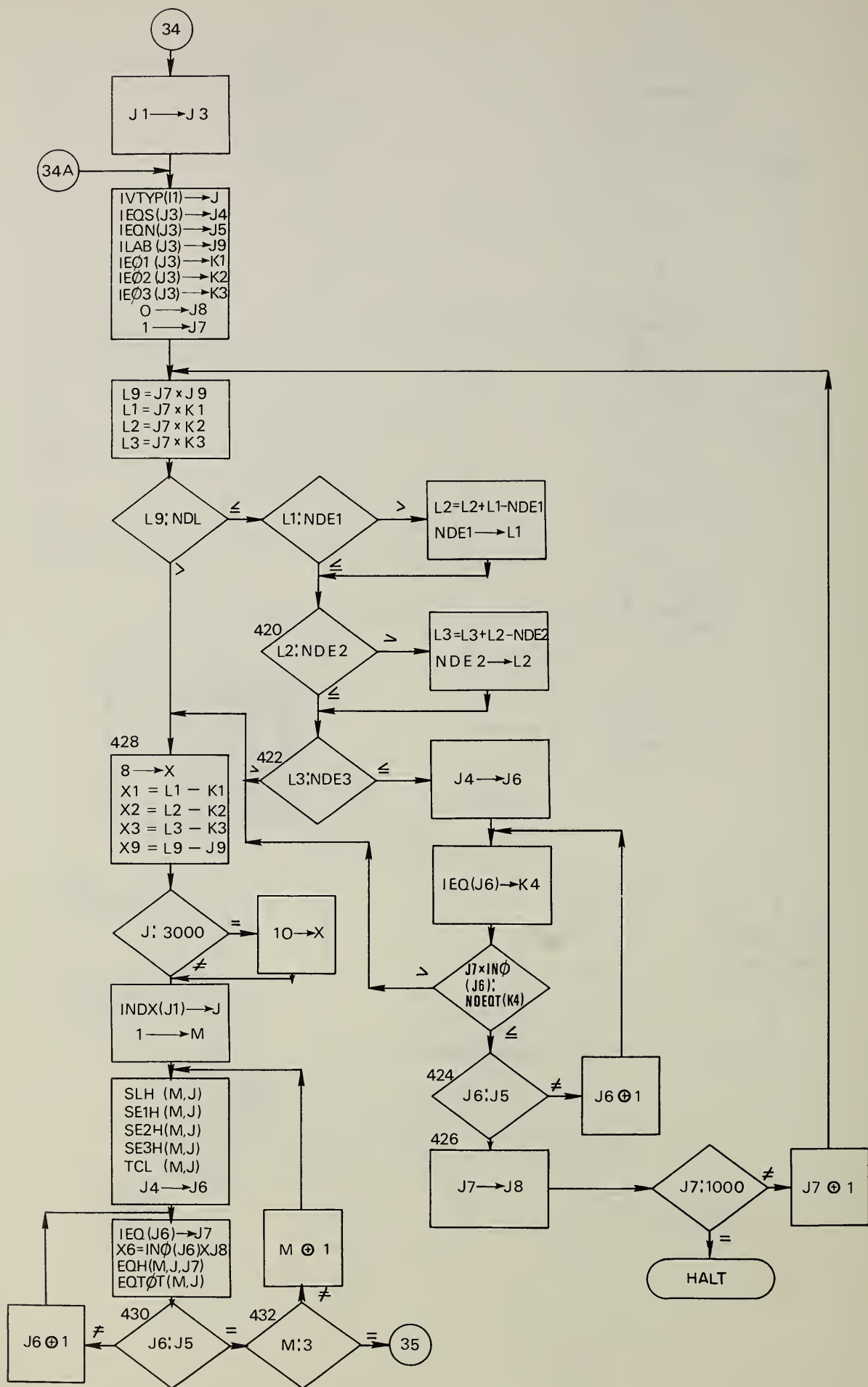


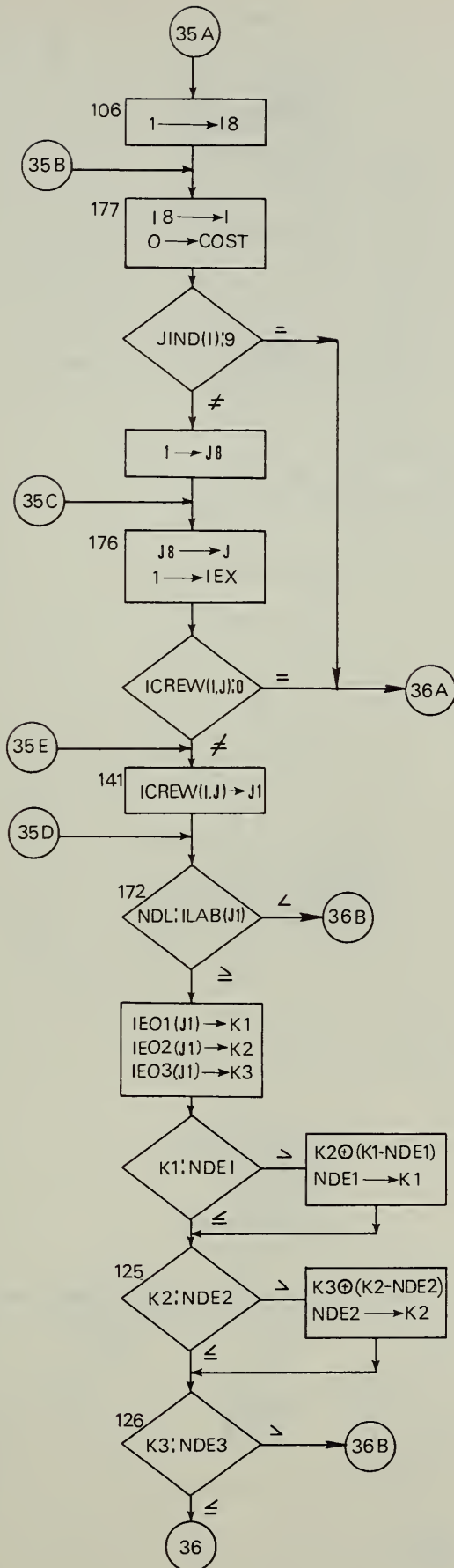
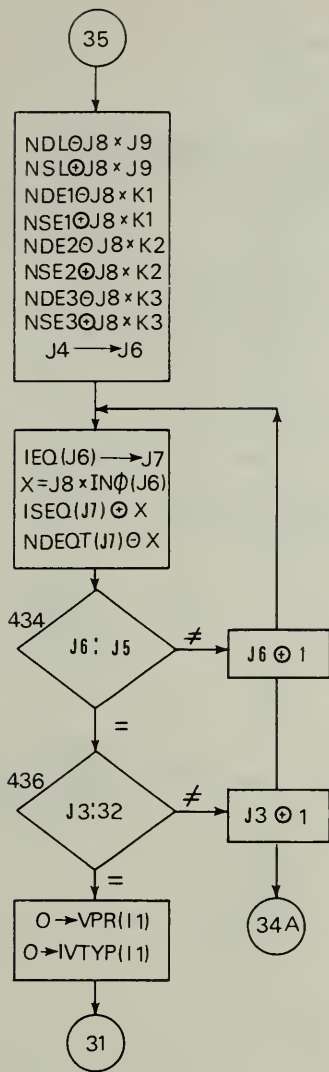


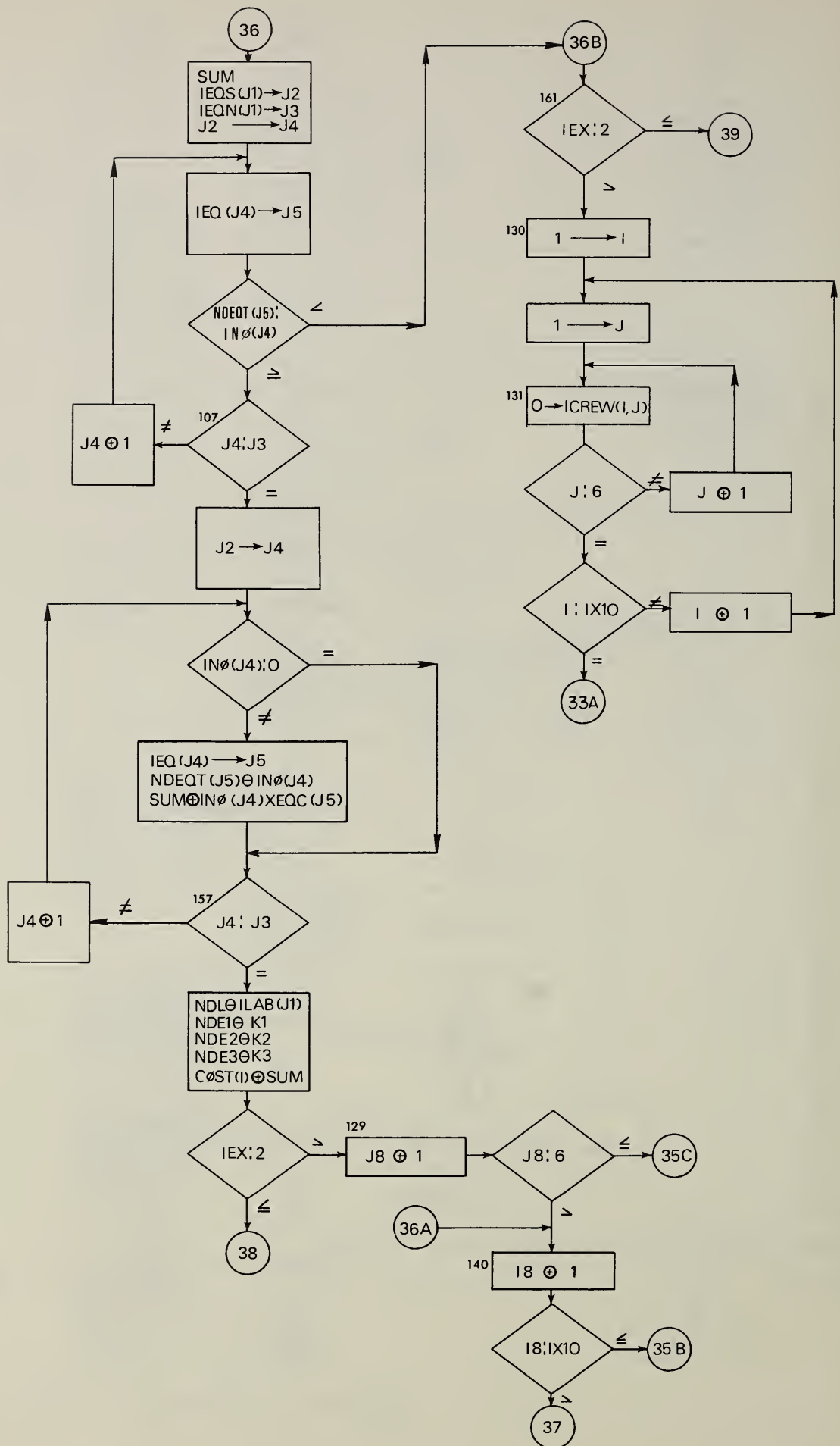


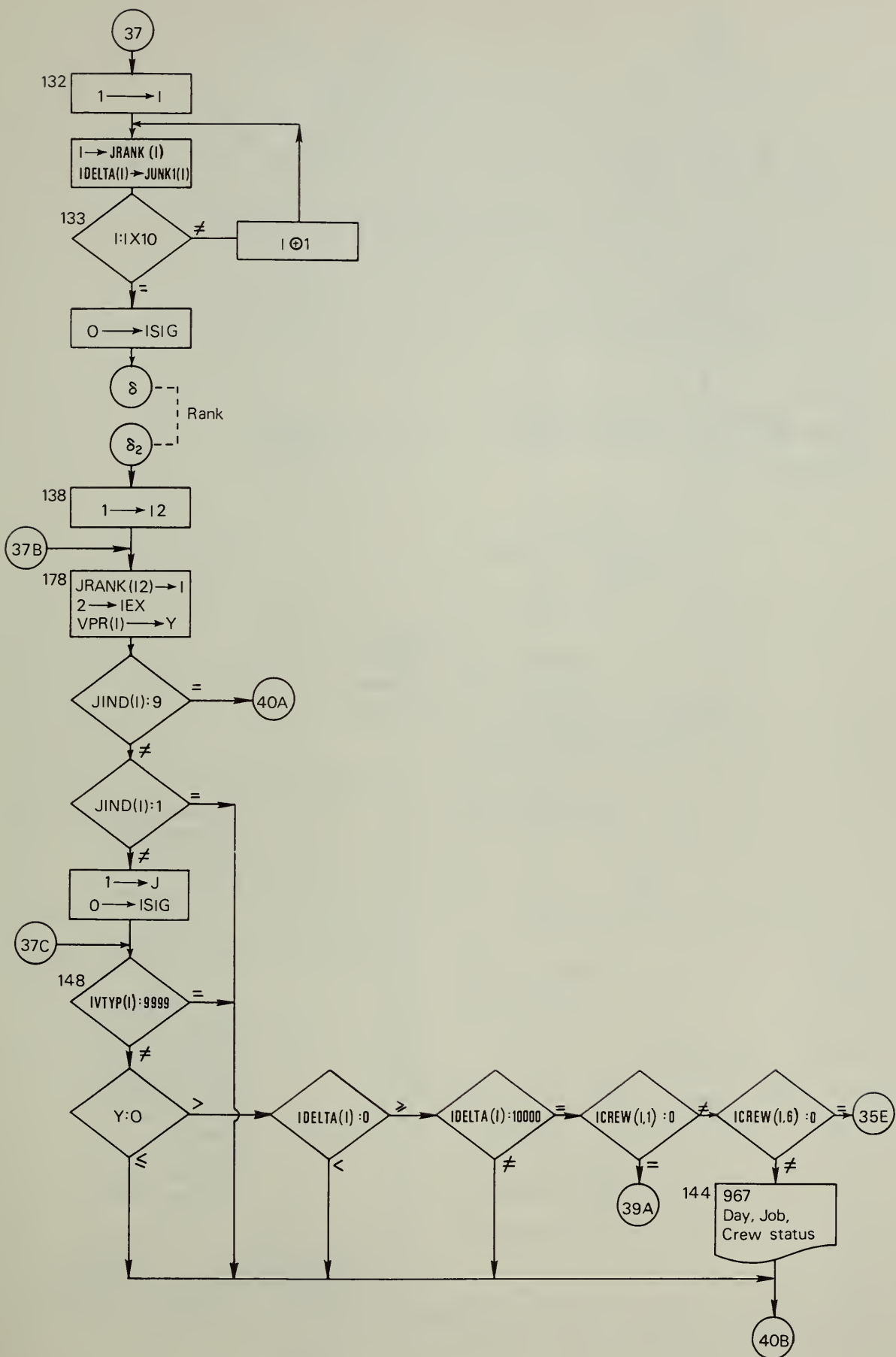


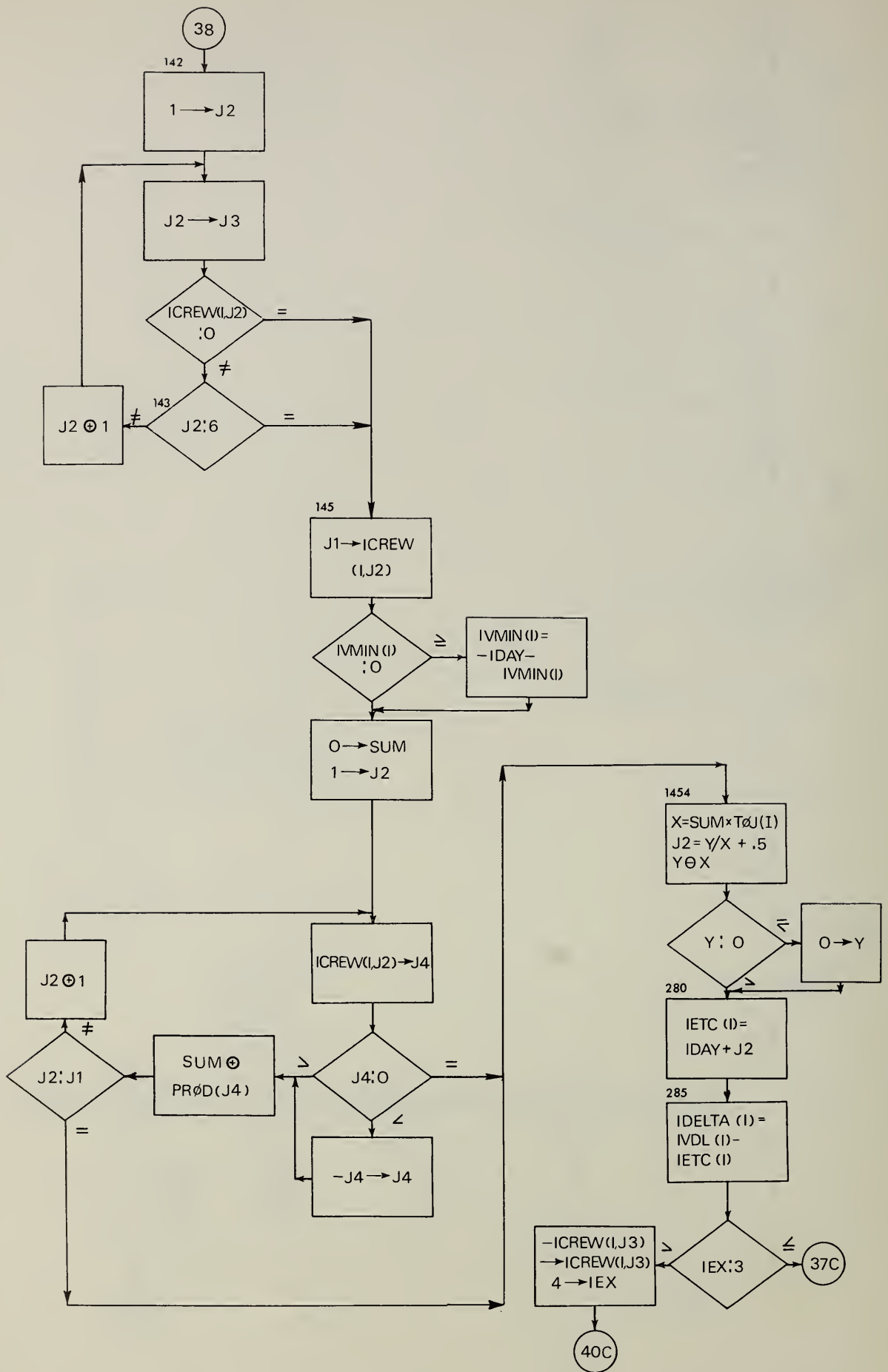


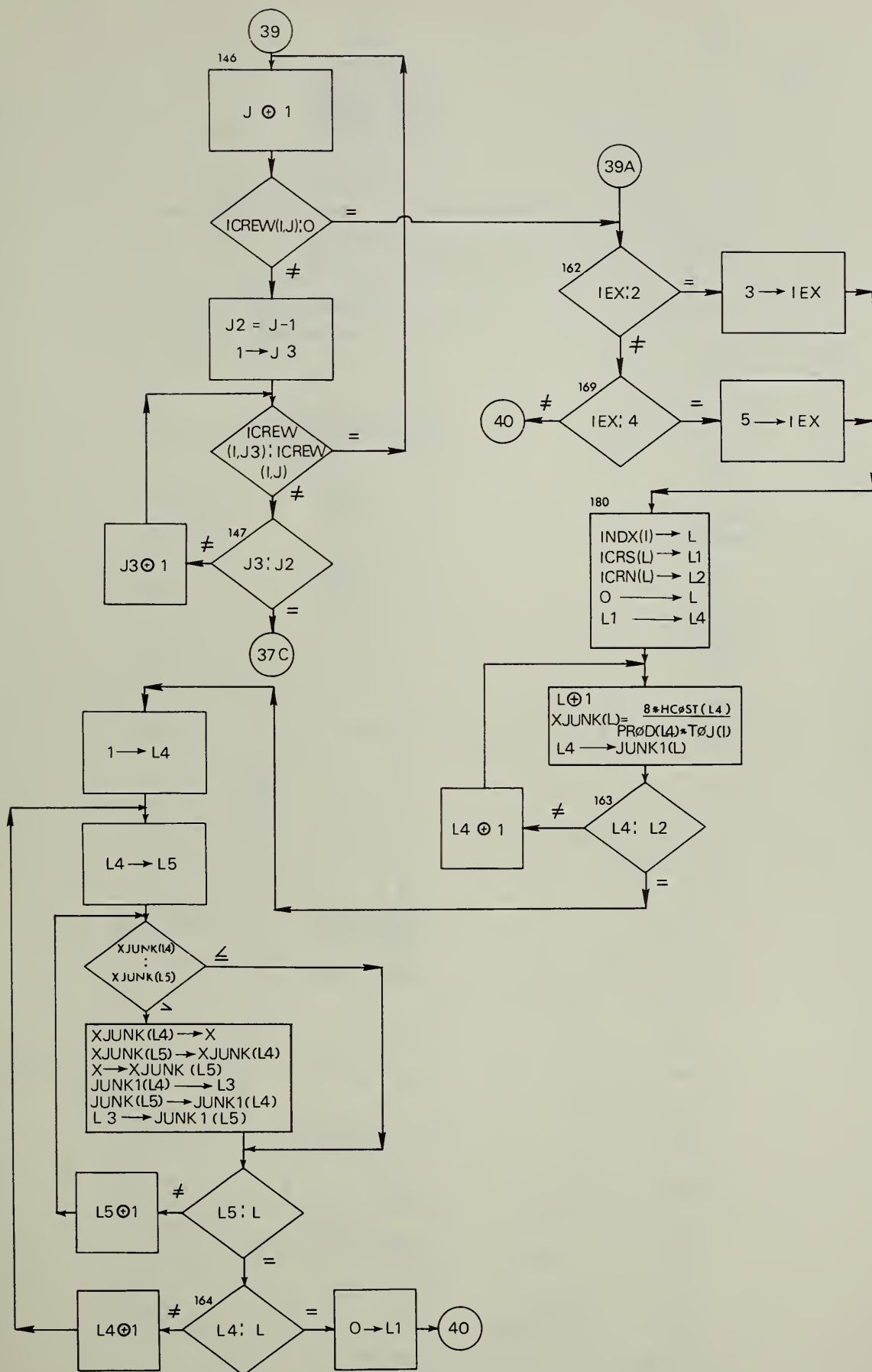


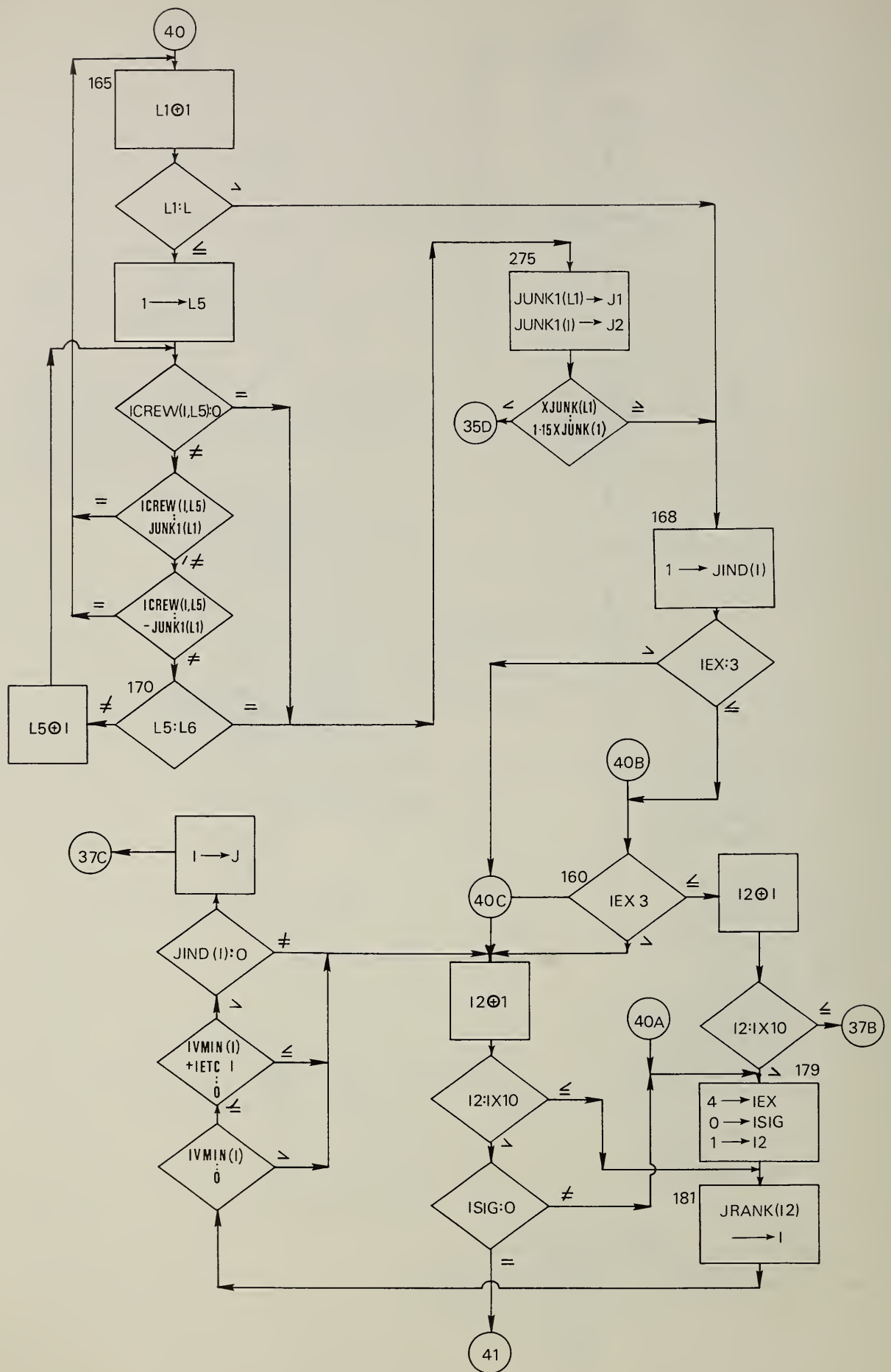


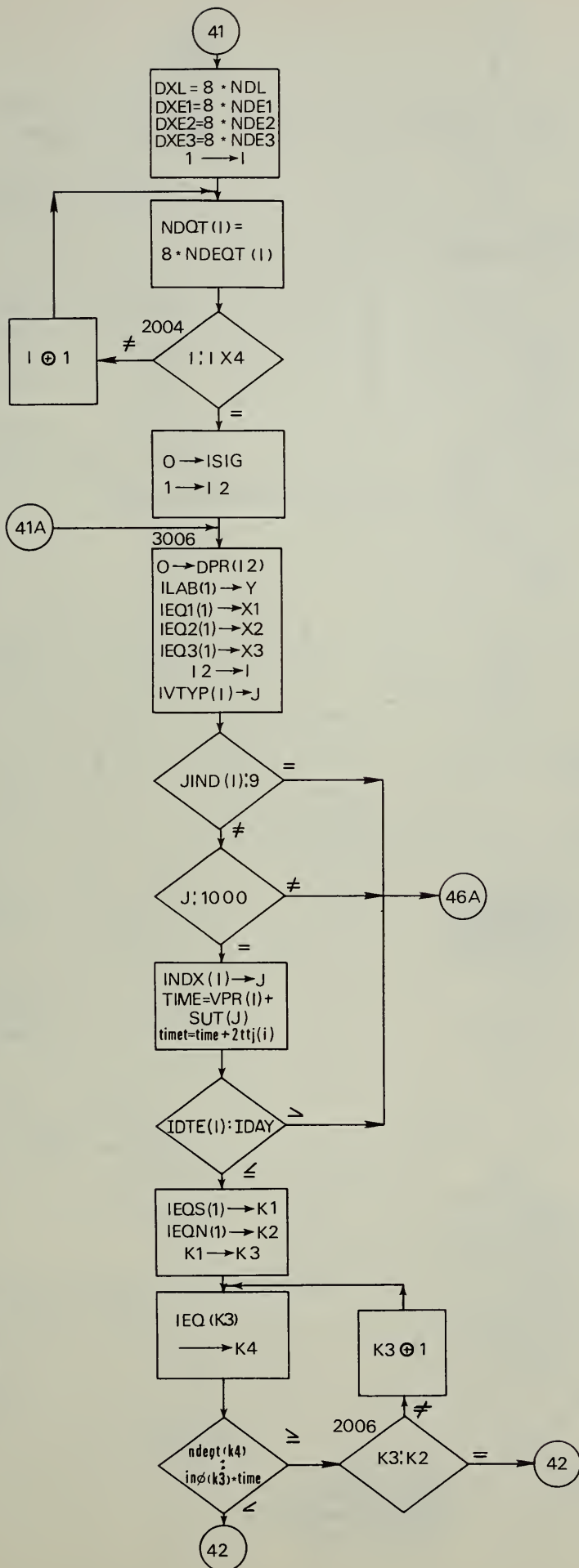


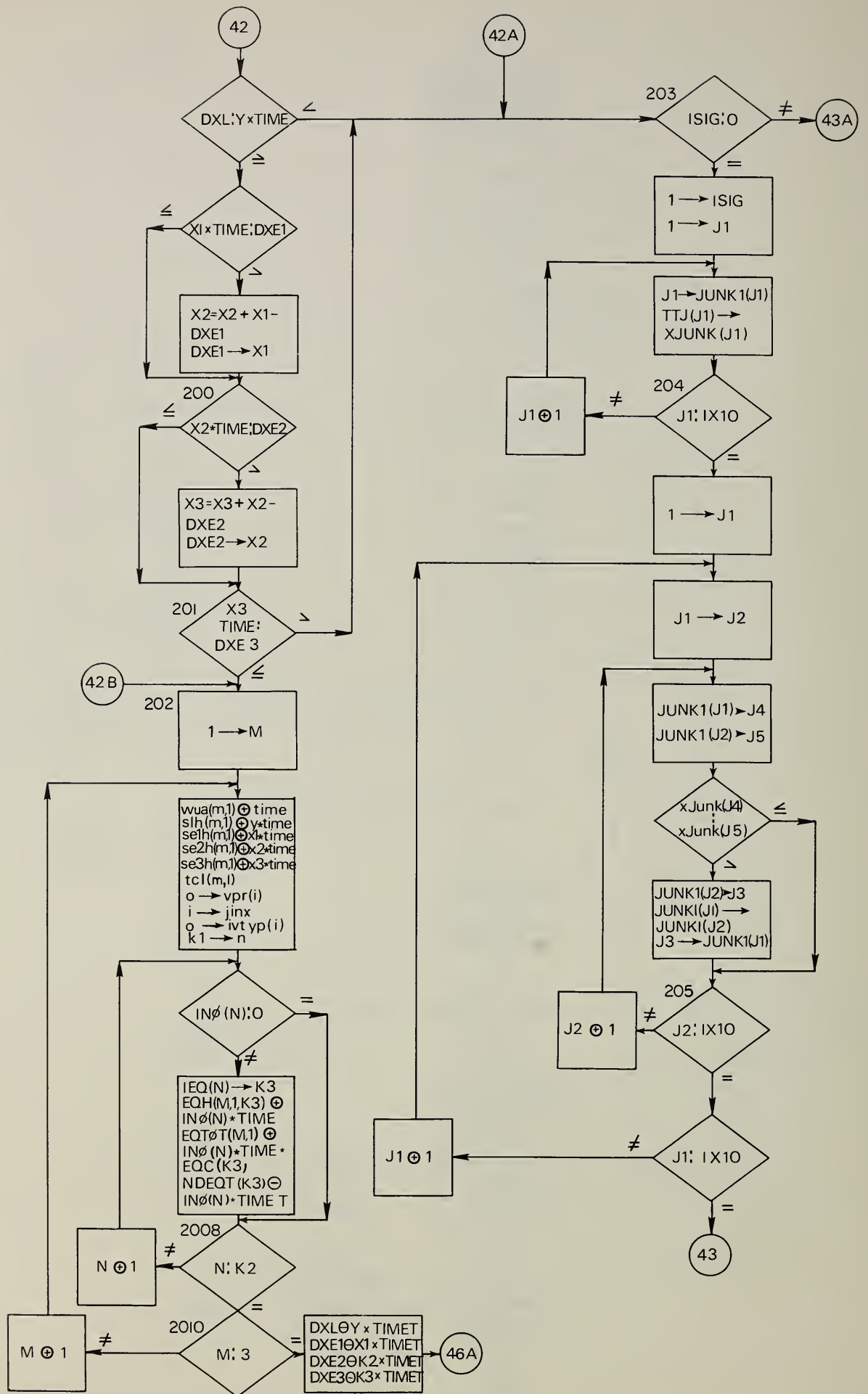


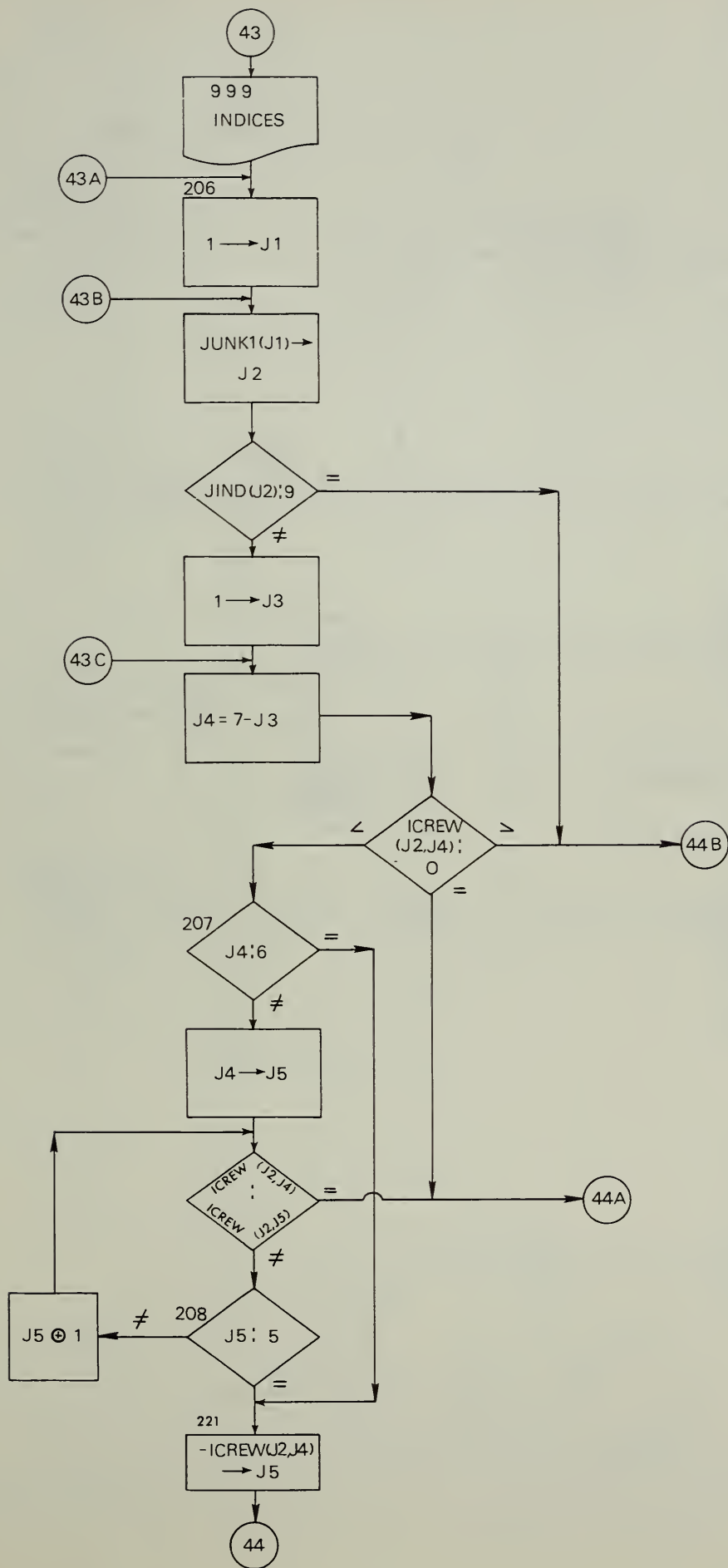


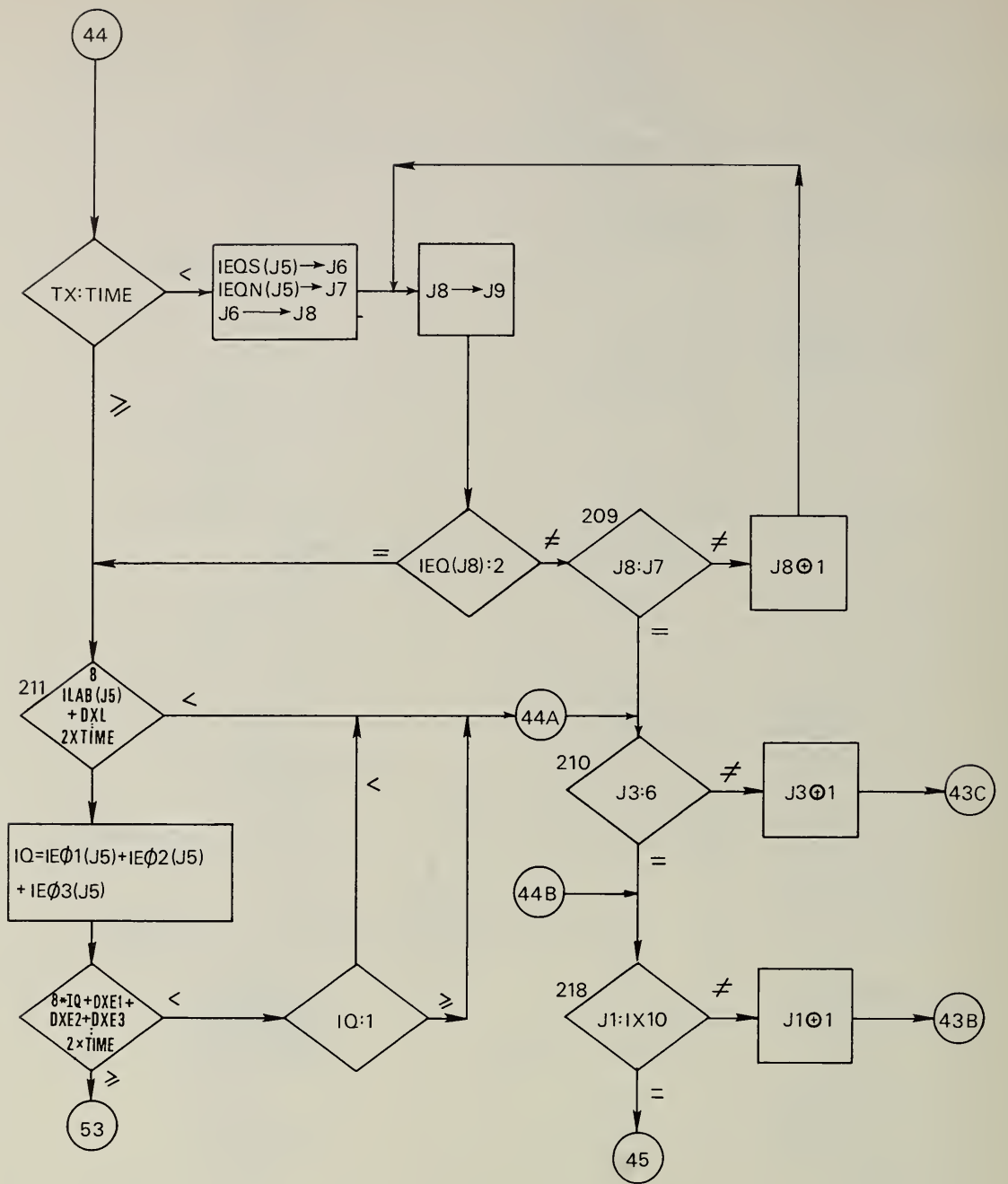


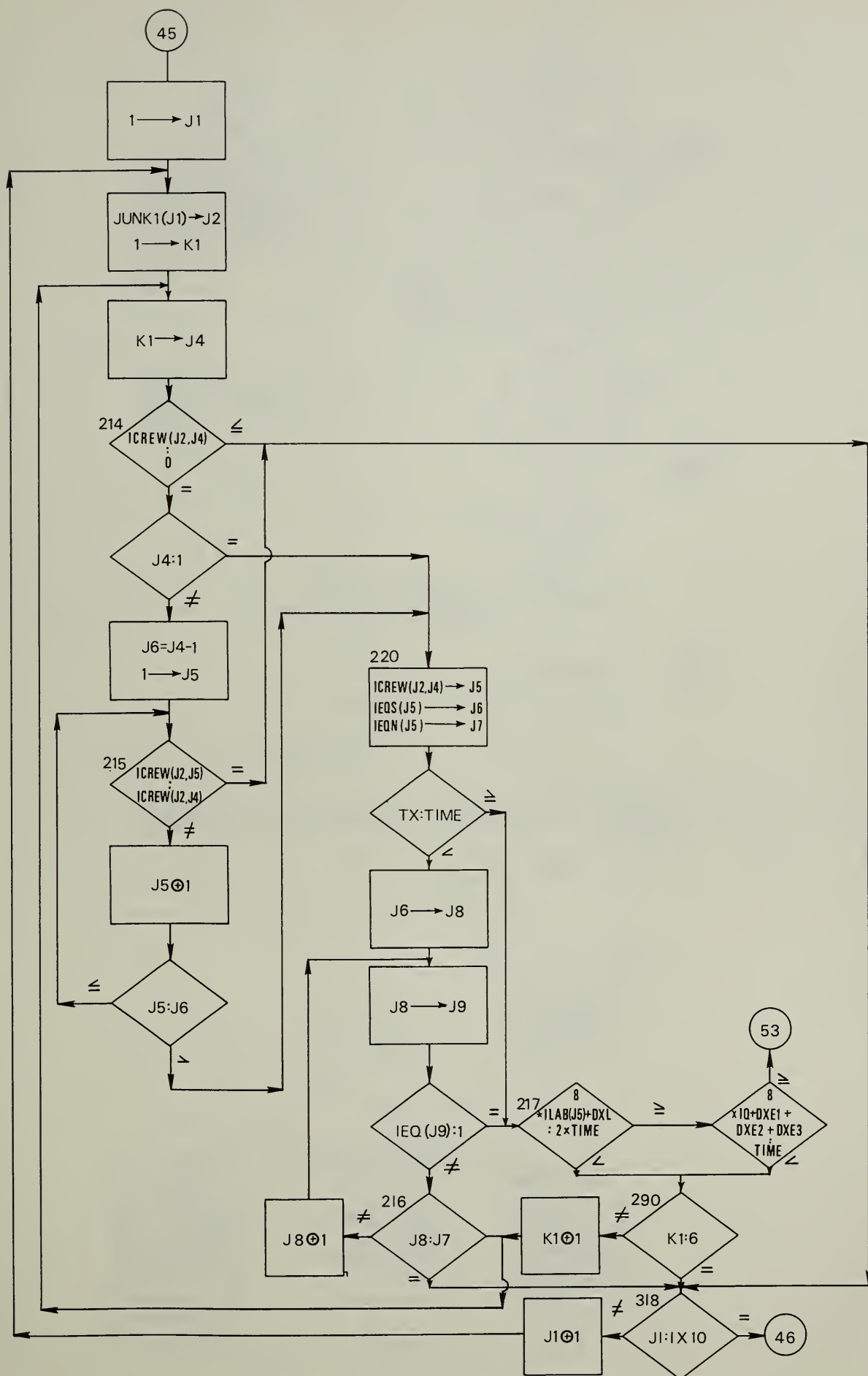


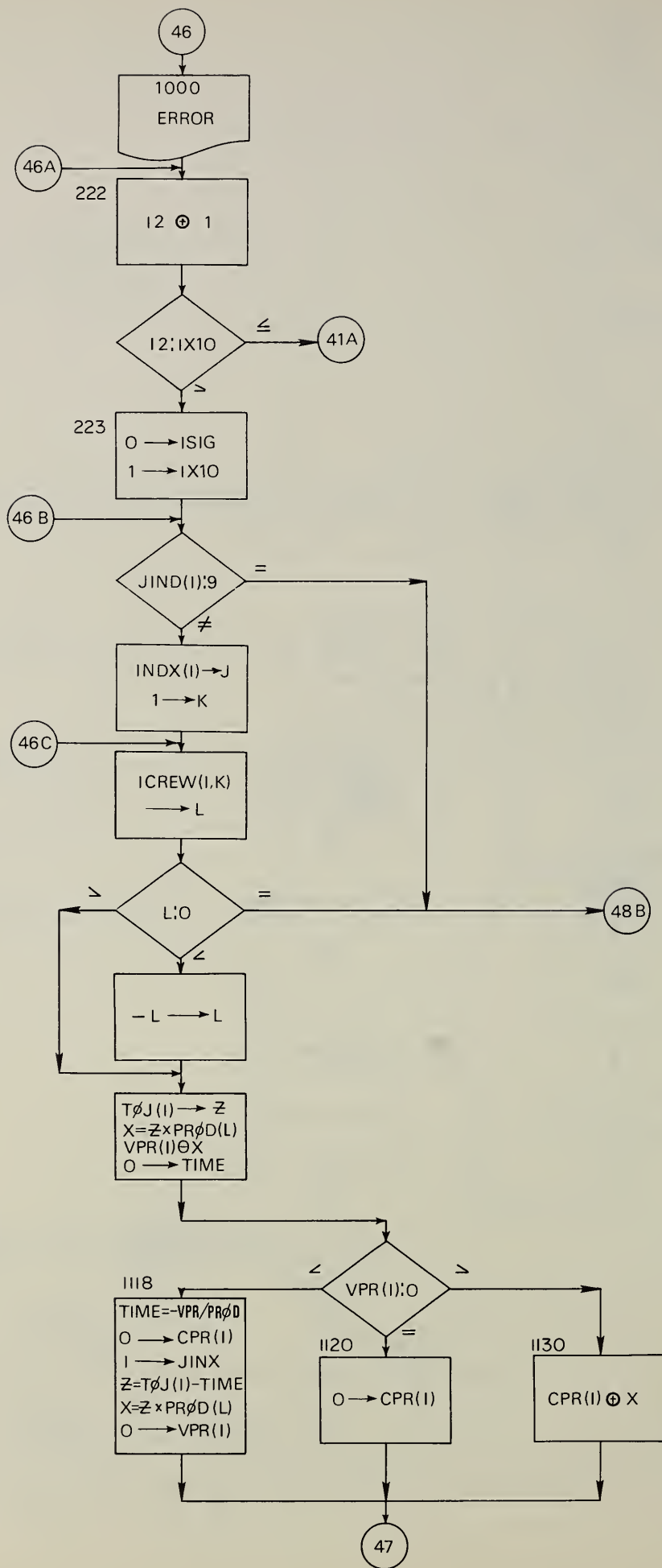


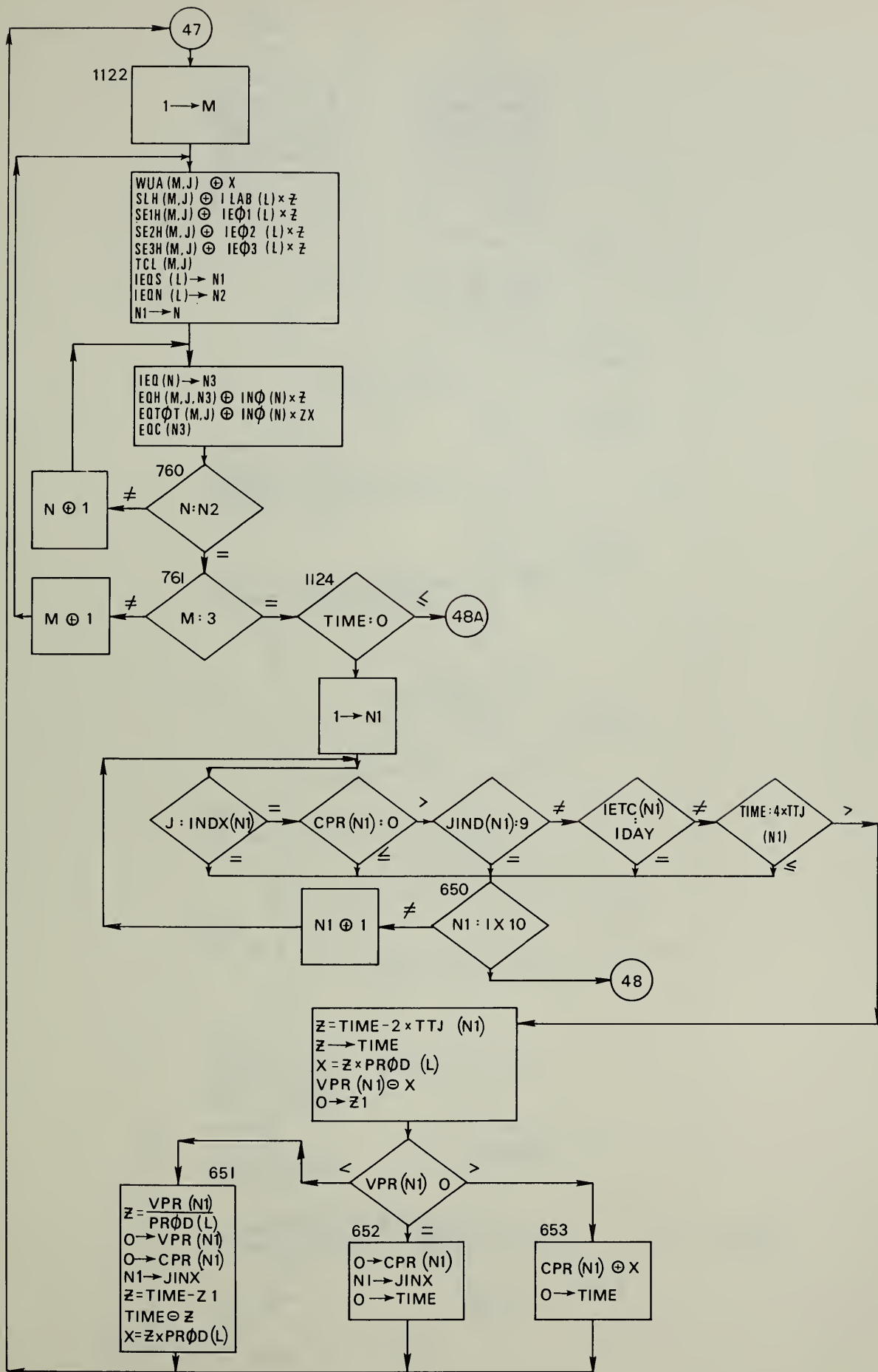


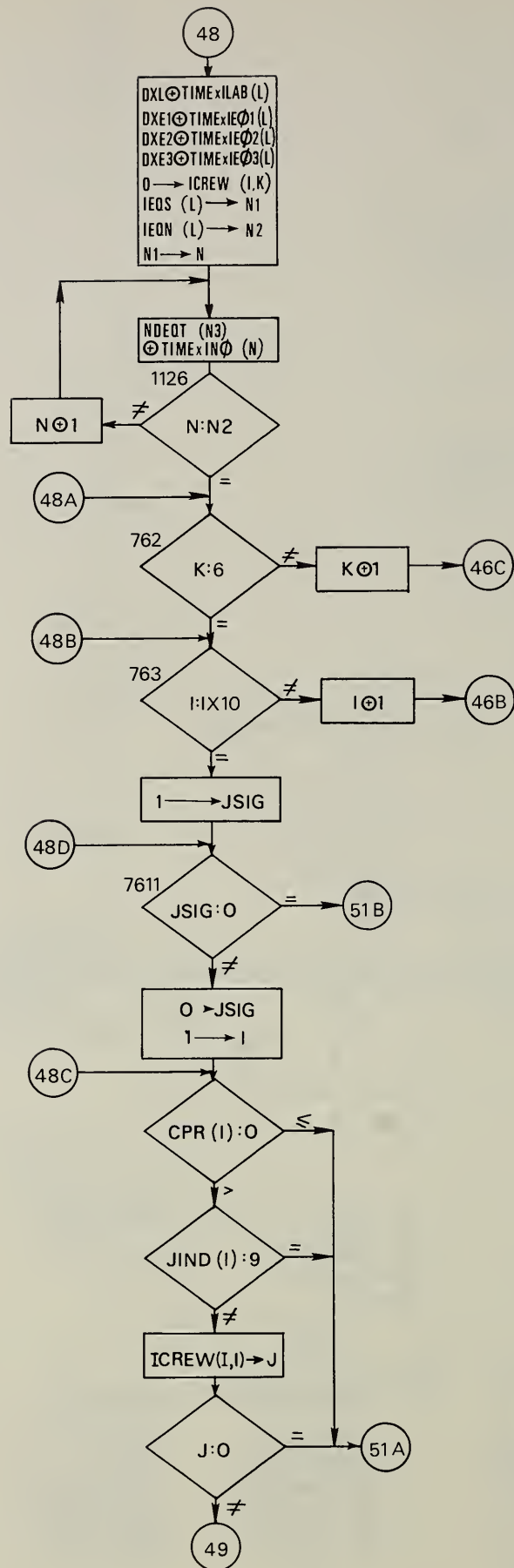


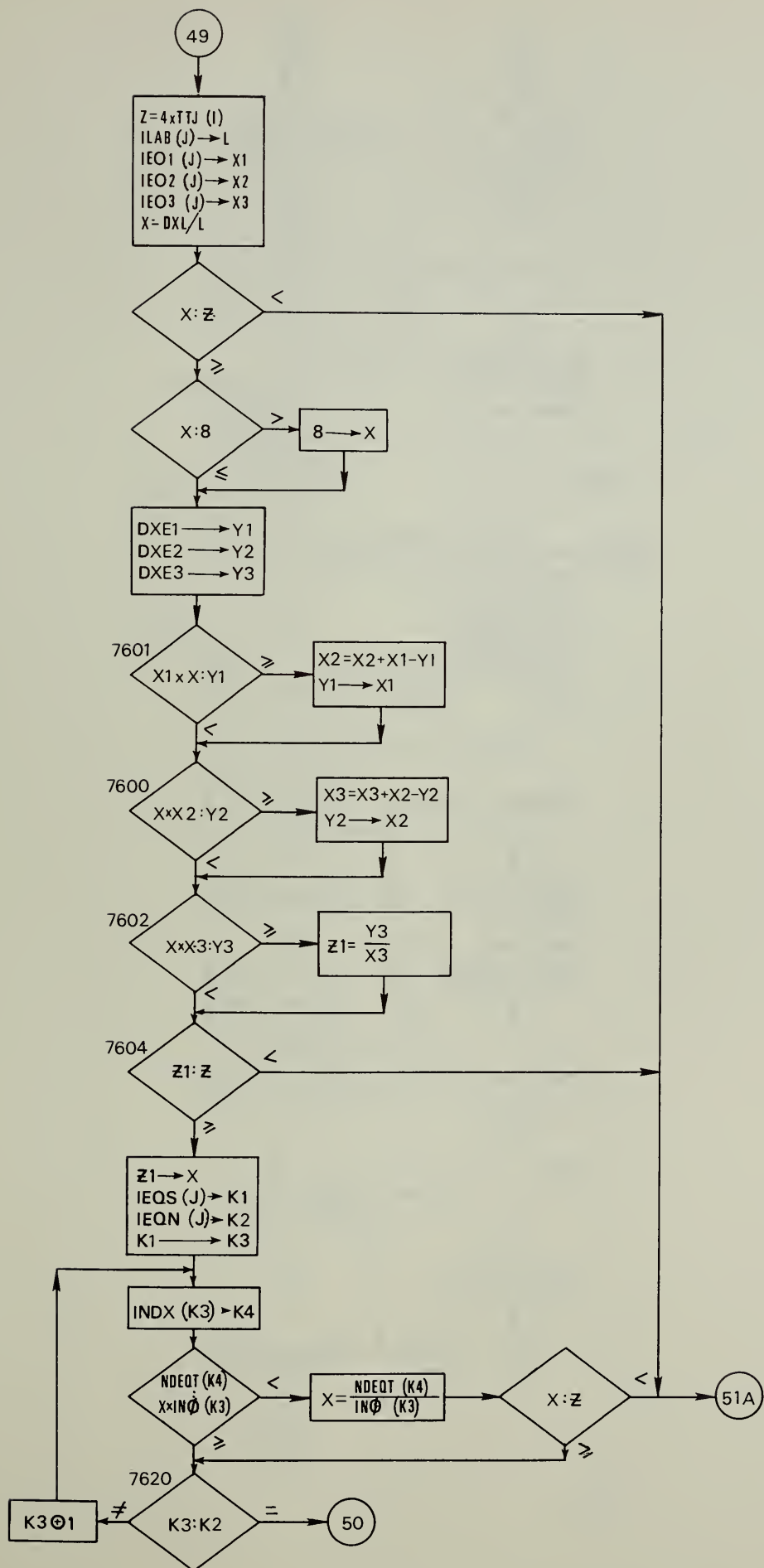


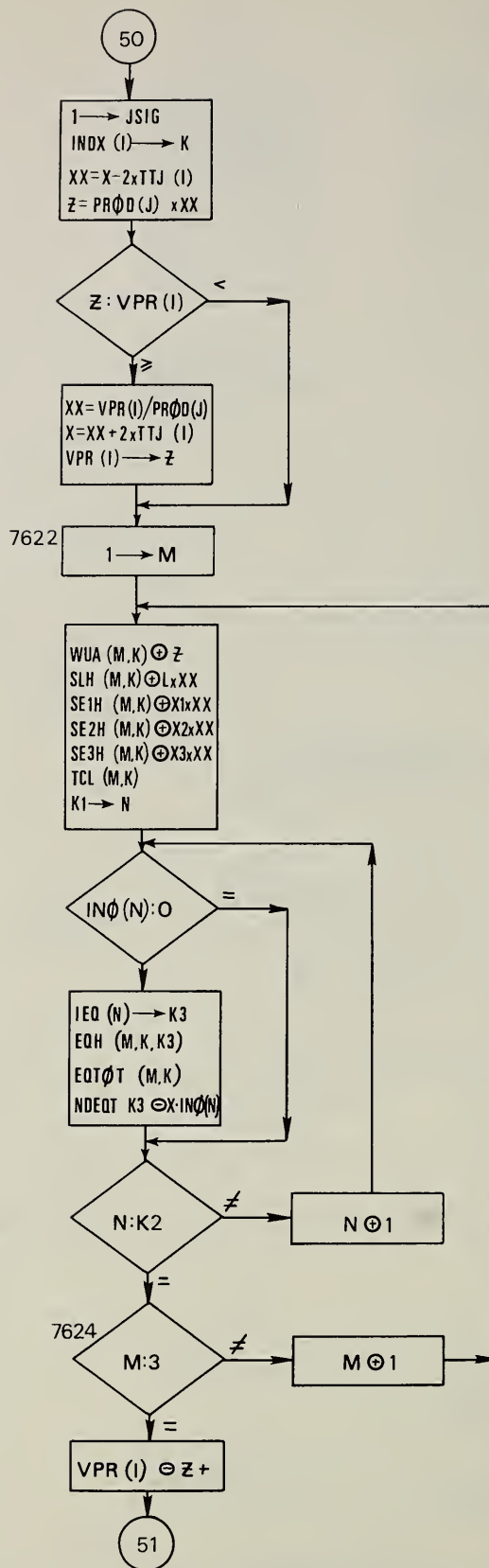


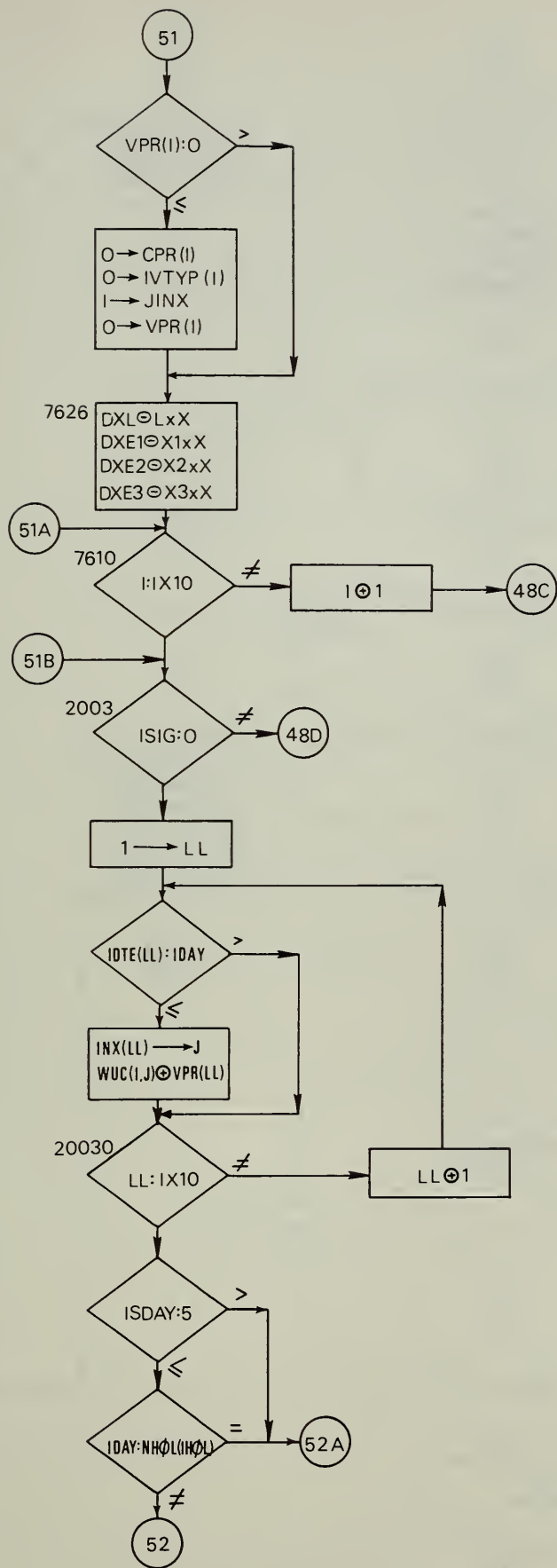


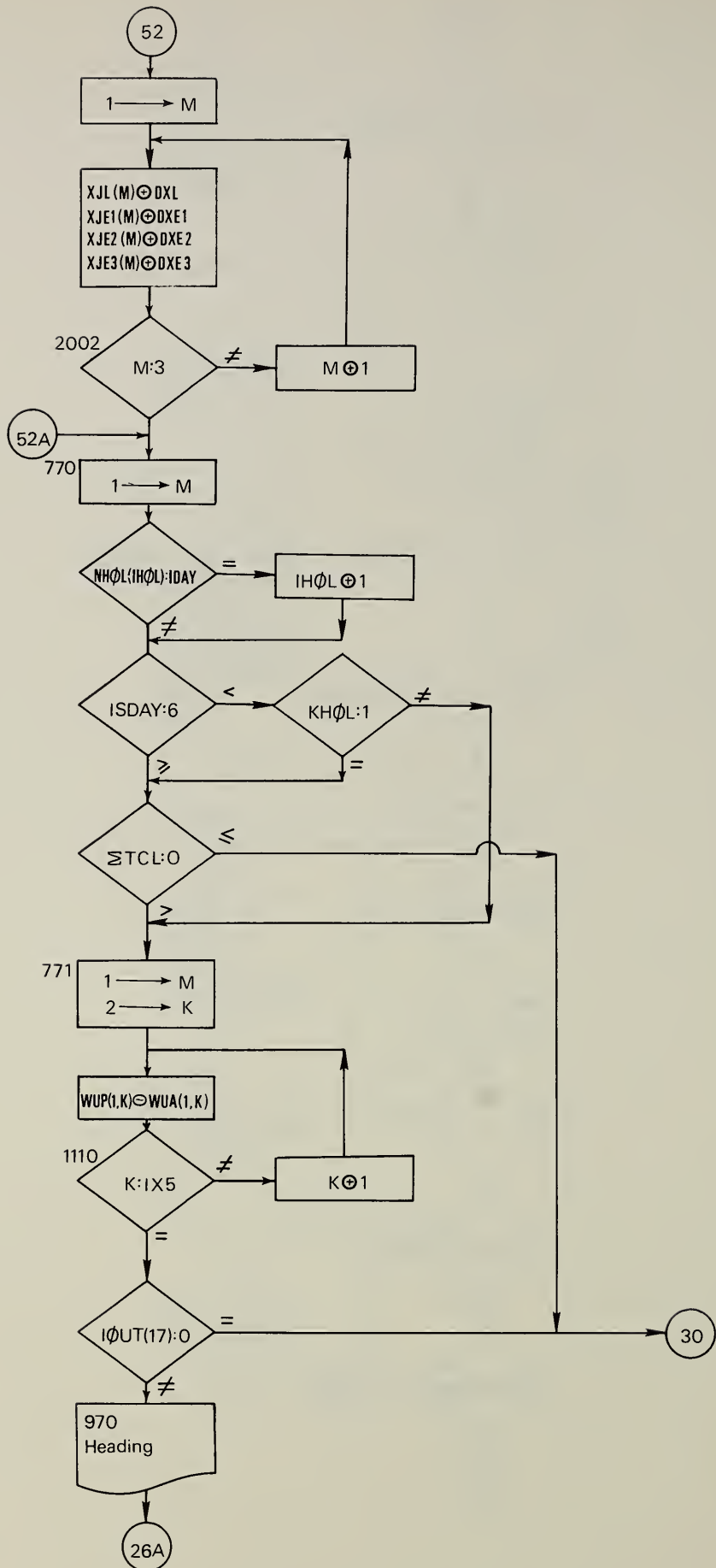


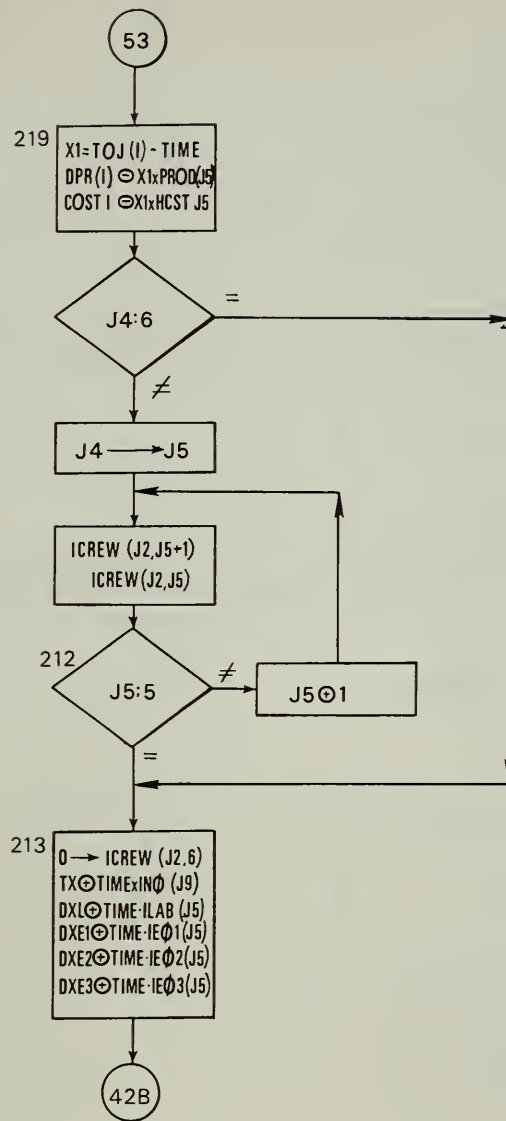


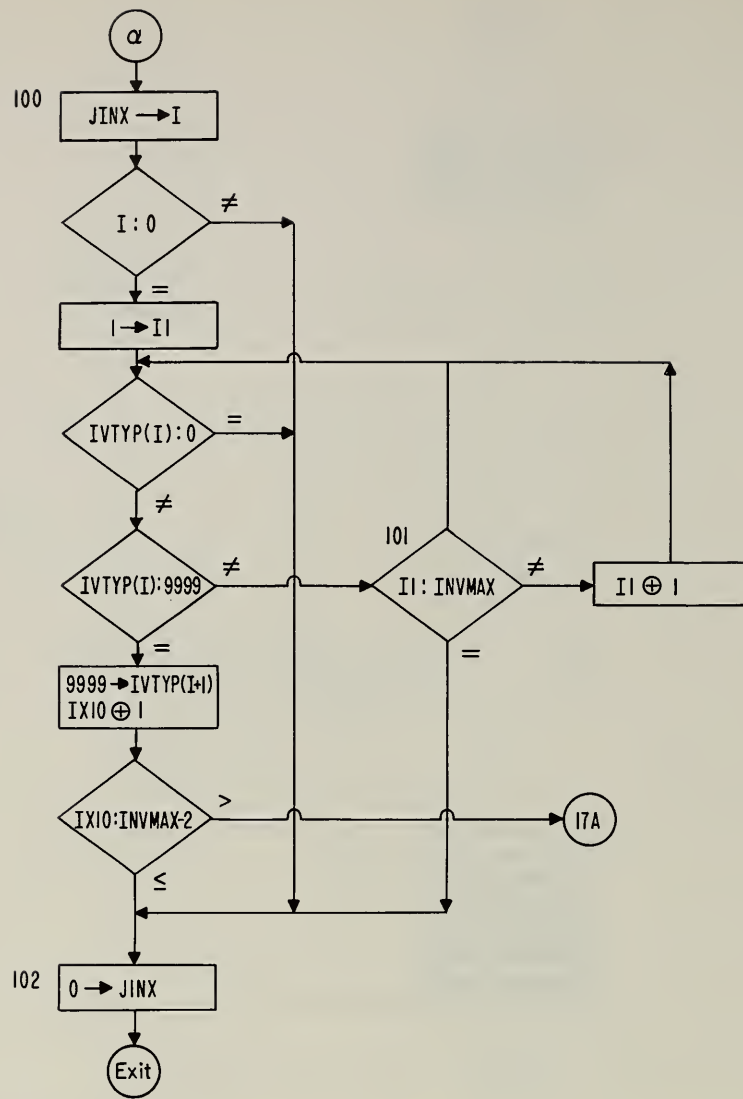


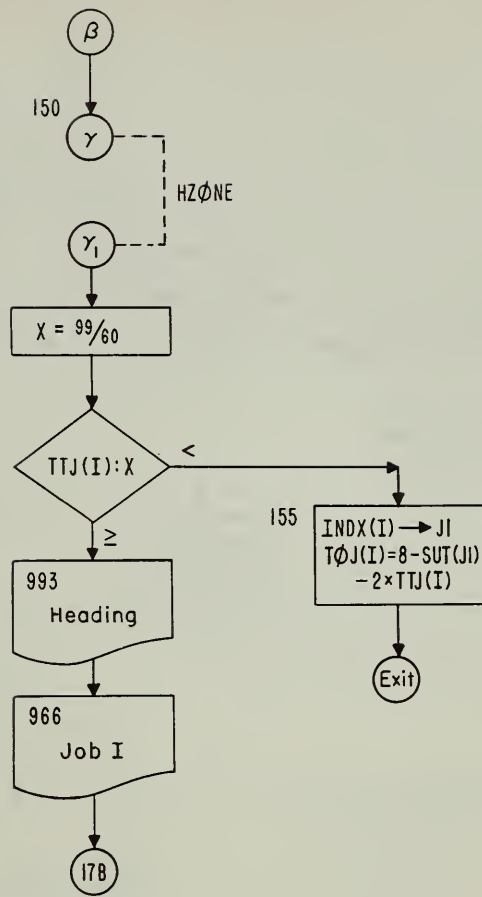


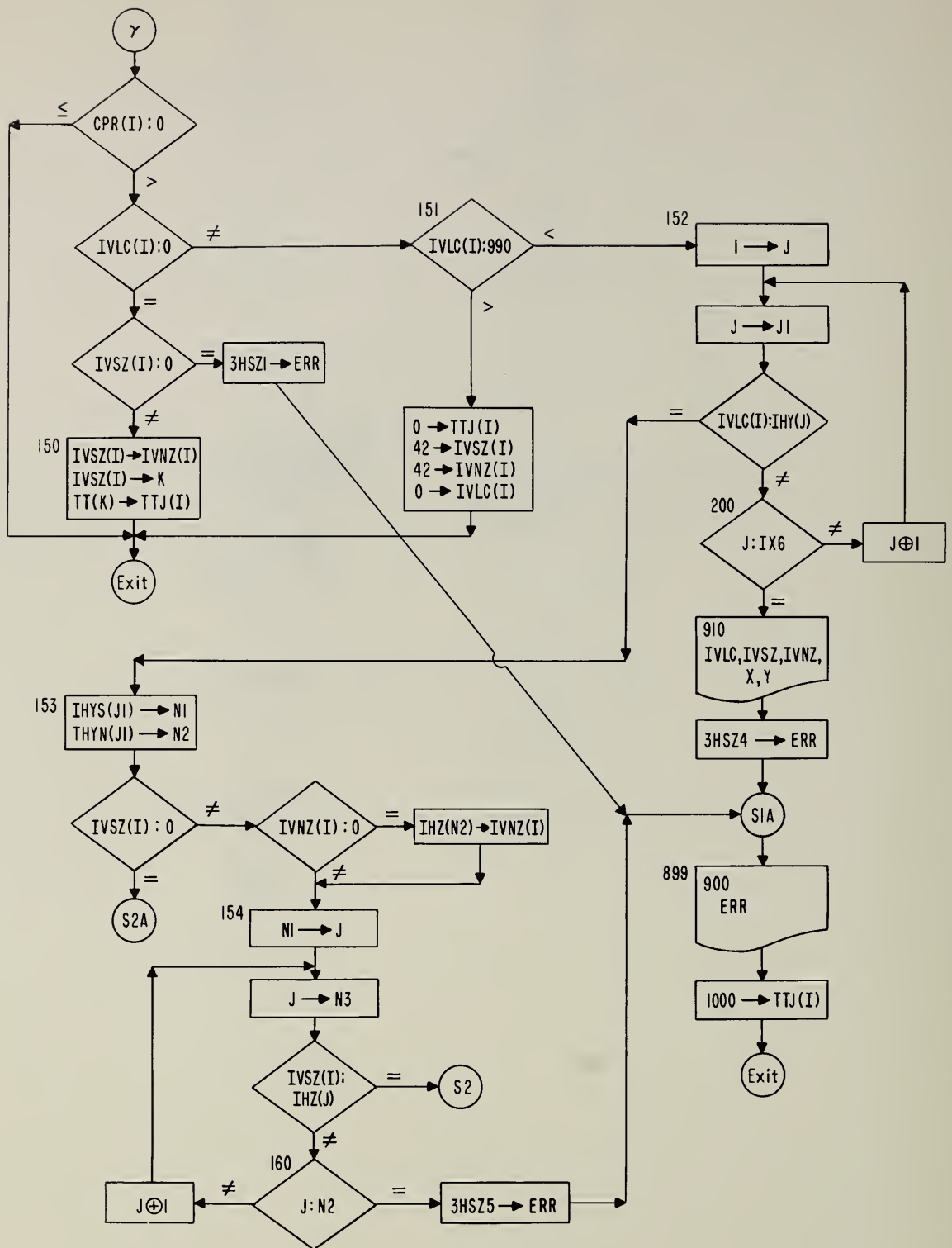


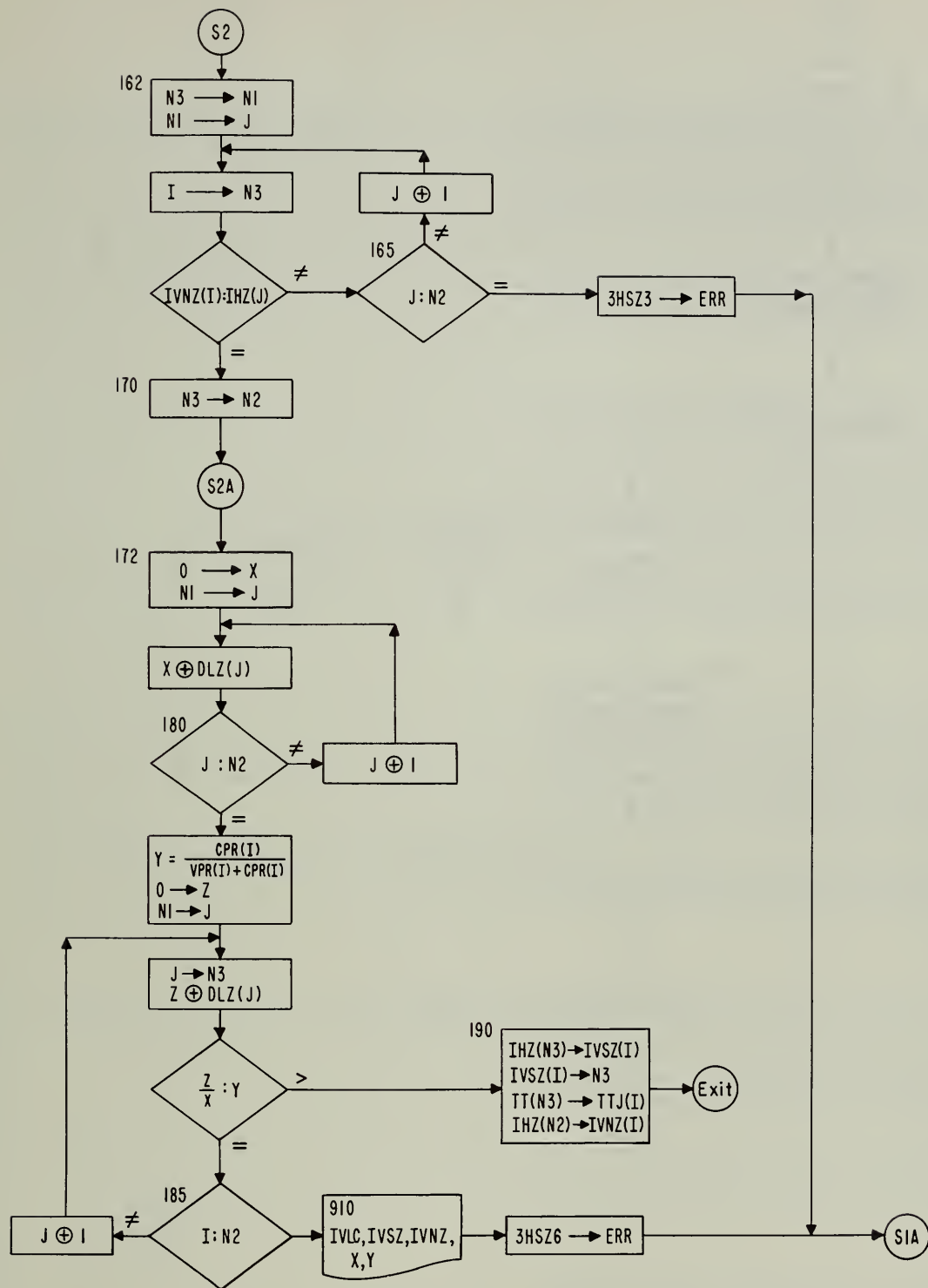


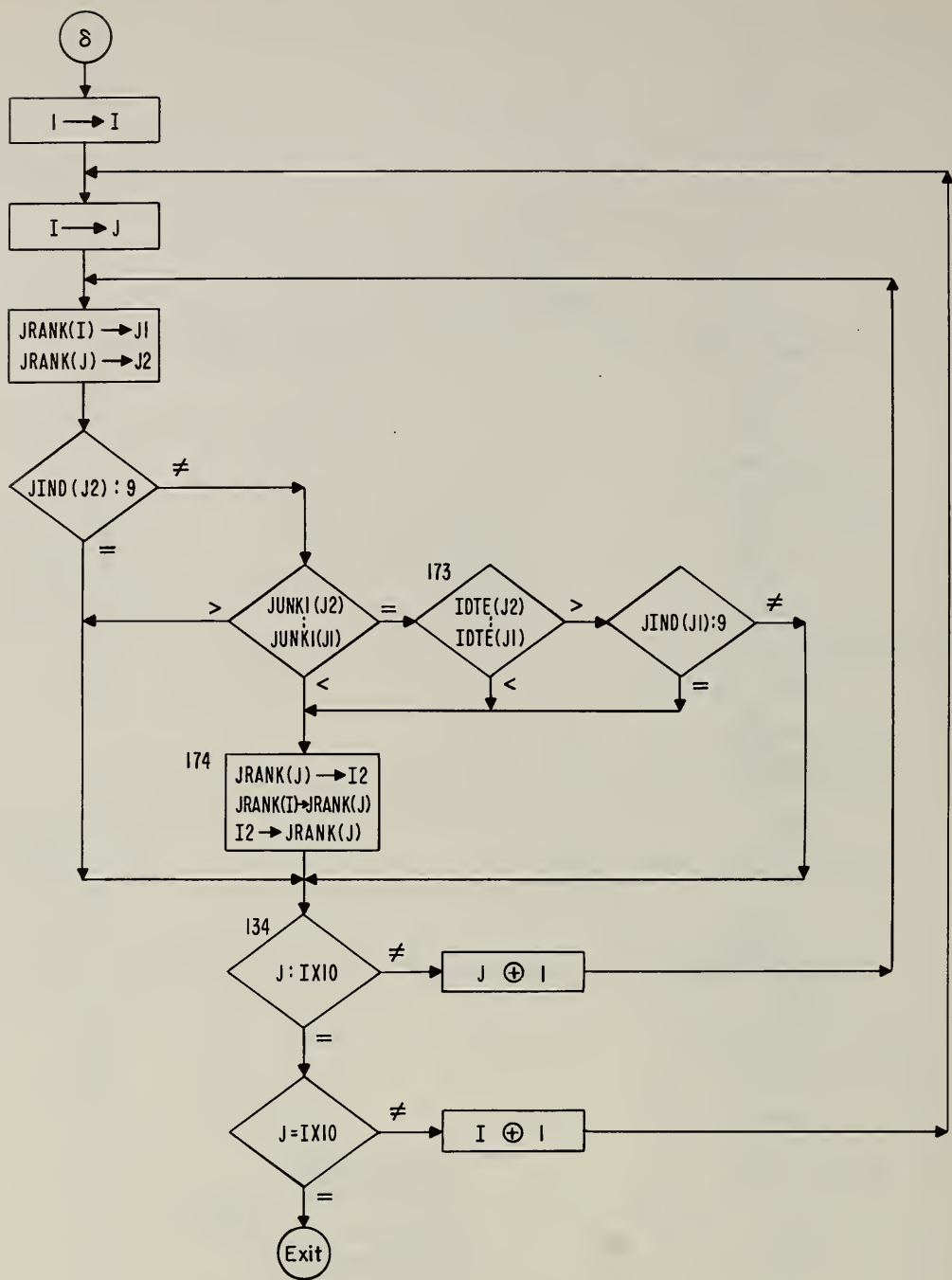












BIT FOR HIWAY,HIWAY 2206 0016 F5016B
UNIVAC 1108 FORTRAN V LEVEL
THIS COMPILATION WAS DONE ON 12 FEB 69 AT 15:07:33

MAIN PROGRAM

STORAGE USED (BLOCK, NAME, LENGTH)

0001 •CODE 013304
0000 •DATA 024254
0002 •BLANK 004346

EXTERNAL REFERENCES (BLOCK, NAME)

0003 HZONE
0004 RANK
0005 NRDCS
0006 NIO1S
0007 NIO2S
0010 NPRTS
0011 NSTOPS

STORAGE ASSIGNMENT FOR VARIABLES (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	001246	10L	0001	003362	100L	0000	022775	1000F	0001	012416	1003L	0001	012622	1005L
0001	012654	1006L	0001	012672	1007L	0001	012675	1008L	0001	012724	1009L	0001	003424	101L
0001	012737	1010L	0001	012750	1011L	0001	001551	1012G	0001	013021	1014L	0001	012442	1015L
0001	013200	1016L	0001	013216	1018L	0001	003426	102L	0001	001563	1020G	0001	013221	1020L
0001	012277	1024L	0001	013207	1026L	0001	012207	1028L	0001	001600	1031G	0001	002723	1036L
0001	002727	1038L	0001	001611	1040G	0001	002731	1040L	0001	002766	1042L	0001	004537	1046L
0001	001823	1047G	0001	004447	105L	0001	005542	106L	0001	001662	1070G	0001	001321	11L
0001	005037	110L	0001	001711	1106G	0001	011243	1112L	0001	001722	1114G	0001	004565	112L
0001	010040	1120L	0001	001733	1122G	0001	010045	1122L	0001	001741	1127G	0001	004570	113L
0001	010042	1130L	0001	001753	1134G	0001	004603	114L	0001	001771	1144G	0001	002013	1157G
0001	004632	116L	0001	002021	1164G	0001	004641	117L	0001	004650	118L	0001	004657	119L
0001	002110	1214G	0001	004701	122L	0001	004737	123L	0001	002152	1233G	0001	004742	124L
0001	002176	1245G	0001	005625	125L	0001	005640	126L	0001	002266	1273G	0001	006025	132L
0001	002447	1363G	0001	005775	140L	0001	005570	141L	0001	006164	142L	0001	002632	1443G
0001	006203	145L	0001	002640	1452G	0001	006254	1454L	0001	006325	146L	0001	002653	1466G
0001	006073	148L	0001	001347	15L	0001	003655	150L	0001	002701	1503G	0001	002751	1534G
0001	002764	1541G	0001	003732	155L	0001	000070	156G	0001	005741	157L	0001	003054	1574G
0001	006547	160L	0001	000071	161G	0001	006005	161L	0001	006361	162L	0001	003162	1635G
0001	006461	164L	0001	006466	165L	0001	000101	167G	0001	006536	168L	0001	006370	169L
0001	006616	171L	0001	005575	172L	0001	003372	1733G	0001	003342	175L	0001	005560	176L
0001	000113	177G	0001	005544	177L	0001	006048	178L	0001	006563	179L	0001	006376	180L
0001	006570	181L	0001	000307	2L	0001	001353	20L	0001	007016	200L	0001	011054	2003L
0001	011076	20030L	0001	007167	2008L	0001	007032	201L	0001	007040	202L	0001	003576	2020G
0001	012224	2022L	0001	007214	203L	0001	007267	205L	0001	012452	2050L	0001	007273	206L
0001	000134	207G	0001	001363	21L	0001	007457	210L	0001	007411	211L	0001	007712	213L
0001	007514	215L	0001	007575	217L	0001	004173	2172G	0001	007461	218L	0001	007657	219L
0001	001435	22L	0001	000153	220G	0001	002534	220L	0001	004226	2204G	0001	007353	221L
0001	007647	222L	0001	007755	223L	0001	000164	226G	0001	004455	2302G	0001	004560	2332G
0001	000175	234G	0001	004465	2375G	0001	001476	24L	0001	000204	242G	0001	004761	2431G

0001	005044	24646	0001	005403	25706	0001	005156	25046	0001	005426	26006	0001	005225	2526	0001	005202	25216
0001	005256	25446	0001	005403	25706	0001	005426	26006	0001	005521	26226	0001	005521	26226	0001	005252	2666
0001	005704	26736	0001	005723	27036	0001	006015	27376	0001	006015	27376	0001	000263	2746	0001	006016	27426
0001	006521	2751	0001	006031	27516	0001	001571	281	0001	001602	291	0001	001602	291	0001	007633	2901
0001	000325	31	0001	006666	30061	0001	003507	3011	0001	006161	30156	0001	006161	30156	0001	003526	3021
0001	006173	30236	0001	003647	30301	0001	006233	30376	0001	003463	3041	0001	003463	3041	0001	003033	3056
0001	002341	3051	0001	006350	30716	0001	004232	30901	0001	004402	30961	0001	004402	30961	0001	001652	311
0001	002324	3101	0001	006412	31146	0001	006434	31236	0001	006442	31266	0001	006442	31266	0001	003321	3156
0001	002311	3151	0001	006503	31506	0001	007635	3181	0001	001660	321	0001	001660	321	0001	006657	32256
0001	004102	3251	0001	006752	32566	0001	000341	3266	0001	001670	331	0001	001670	331	0001	007077	33026
0001	007130	33166	0001	007225	33436	0001	007343	33516	0001	007244	33546	0001	007244	33546	0001	007300	33716
0001	007314	33776	0001	001672	341	0001	007343	34106	0001	007377	34246	0001	007377	34246	0001	007465	34476
0001	007472	34536	0001	007560	35006	0001	007707	35366	0001	007763	35536	0001	007763	35536	0001	010000	35616
0001	010122	36126	0001	010155	36256	0001	010212	36406	0001	010360	37116	0001	010360	37116	0001	010420	37306
0001	010567	37756	0001	001472	391	0001	000706	41	0001	001777	401	0001	001777	401	0001	010723	40216
0001	010750	40326	0001	011063	40656	0001	000234	4201	0001	011121	41006	0001	005247	4221	0001	011420	42256
0001	011240	41376	0001	011306	41566	0001	000234	4201	0001	011654	43106	0001	011654	43106	0001	011703	43326
0001	005303	4281	0001	002063	431	0001	011750	43476	0001	012010	43636	0001	012010	43636	0001	002126	441
0001	011725	43326	0001	011743	43426	0001	002106	4411	0001	003036	4421	0001	003036	4421	0001	012103	44216
0001	003034	4401	0001	012062	44066	0001	004542	4521	0001	004545	4531	0001	004545	4531	0001	004735	4541
0001	000406	4506	0001	005034	4511	0001	012243	46156	0001	012243	46156	0001	012300	46306	0001	012315	46406
0001	000345	461	0001	012236	46106	0001	012377	46656	0001	000460	471	0001	000460	471	0001	012437	47056
0001	012347	46536	0001	012371	46626	0001	012551	47426	0001	000663	4746	0001	000663	4746	0001	012630	47606
0001	012450	47156	0001	012471	47226	0001	000727	51	0001	002353	531	0001	002353	531	0001	013151	50606
0001	000575	481	0001	000643	491	0001	003261	51156	0001	002510	581	0001	002510	581	0001	001046	61
0001	002145	511	0001	002346	561	0001	001071	5776	0001	003202	631	0001	003202	631	0001	003256	6301
0001	002426	551	0001	001112	6116	0001	001164	6256	0001	000216	651	0001	000216	651	0001	010315	6501
0001	003521	6311	0001	003273	641	0001	001205	6456	0001	003100	691	0001	003100	691	0001	001222	71
0001	003261	6311	0001	010310	6531	0001	003013	7091	0001	003110	711	0001	003110	711	0001	001341	7106
0001	010303	6521	0001	002576	7001	0001	001442	7516	0001	010521	76001	0001	010521	76001	0001	010623	76201
0001	003102	701	0001	001325	7306	0001	010411	76116	0001	010404	7631	0001	010404	7631	0001	012135	7661
0001	003335	721	0001	011052	76101	0001	011030	76261	0001	012014	7721	0001	012014	7721	0001	012107	77301
0001	010546	76041	0001	011107	76241	0001	012014	7721	0001	012036	7761	0001	012036	7761	0001	011405	7771
0001	010655	76221	0001	011174	7711	0001	001517	7766	0001	003336	801	0001	003336	801	0001	003440	811
0001	011136	7701	0001	011342	7751	0001	001116	81	0001	004033	8301	0001	004033	8301	0001	004120	841
0001	012113	7741	0001	011734	7821	0001	004033	831	0001	004033	831	0001	004033	831	0001	004120	841
0001	011673	7801	0001	003776	8201	0001	002331	9001	0001	002332	901	0001	002332	901	0001	002333	9021
0001	004011	821	0001	012214	8991	0001	002331	9001	0001	002332	901	0001	002332	901	0001	002333	9021
0001	004142	8401	0001	002344	9041	0001	002331	9001	0001	002332	901	0001	002332	901	0001	002333	9021
0001	002340	9031	0001	002344	9041	0001	002331	9001	0001	002332	901	0001	002332	901	0001	002333	9021
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001	002347	9081	0001	0023370	9091	0001	004275	911	0001	004330	921	0001	004330	921	0001	0023372	9201
0001																	

0000 R 022300 DXE3	0000 R 022275 DXL	0000 R 001311 EQC	0000 R 015456 EQH	0000 R 015324 EQTOT
0000 R 023760 HCST	0000 R 023760 HCST	0000 R 000745 HE1	0000 R 000771 HE2	0000 R 001053 HOL
0000 R 002100 HT1	0000 R 002136 HT2	0002 I 000000 I	0000 I 022155 ICLR	0000 I 010146 ICREW
0000 I 002042 ICRN	0000 I 002004 ICPS	0000 I 022225 IDAY	0000 I 012200 IDELTA	0000 I 000014 IDM
0002 I 003444 IDTE	0000 I 002352 IE01	0000 I 002530 IE02	0000 I 002704 IE03	0000 I 003576 IEQ
0000 I 001227 IEQ1	0000 I 003420 IEQN	0000 I 001260 IEQNO	0000 I 003242 IERR	0000 I 022263 IEQS
0000 I 001652 IEQD	0000 I 011752 IETC	0000 I 022272 IEX	0000 I 022134 IFULL	0000 I 001117 IGATE
0000 I 002154 IH0L	0002 I 000565 IHY	0002 I 000673 IHYN	0002 I 000630 IHYS	0002 I 000736 IHZ
0000 I 003044 ILAR	0000 I 022224 ILAST	0000 I 001710 ILD	0000 023532 INDEX	0000 I 023532 INDX
0000 I 004170 INO	0000 I 022147 INVMAX	0000 I 022230 INVSUM	0000 I 001163 IOUT	0000 I 023272 IPER
0000 I 022226 IPLAN	0000 I 022305 IPRINT	0000 I 005642 IRL	0000 I 005022 IRLC	0000 I 005522 IRMAX
0000 I 005402 IRMIN	0000 I 004562 IRMT	0000 I 006102 IRNT	0000 I 005262 IRNZ	0000 I 023272 IRPER
0000 I 005142 IRSZ	0000 I 023412 IRTPF	0000 I 023412 IRTYP	0000 I 005762 IS	0000 I 022156 ISDAY
0000 I 001373 ISEQ	0000 I 022237 ISIG	0000 I 022236 ISPEC	0000 I 001424 ITTYP	0000 I 007472 IVDL
0002 I 001640 IVL	0000 I 007244 IVMAX	0000 I 007016 IVMIN	0000 I 006570 IVMT	0000 I 007720 IVNT
0002 I 004120 IVNZ	0002 I 002066 IVSZ	0000 I 006342 IVTYP	0000 I 000154 IW	0000 I 001462 IWA
0000 I 001520 IWR	0000 I 001556 IWC	0000 I 001614 IWD	0000 I 022151 IWEEK	0000 I 022246 IWX
0002 I 000001 IX10	0000 I 022175 IX4	0000 I 002137 IX4M	0000 I 022177 IX5	0000 I 022202 IX5C
0000 I 022141 IX5CM	0000 I 022204 IX5E	0000 I 022142 IX5EM	0000 I 022140 IX5M	0002 I 000002 IX6
0000 I 022143 IX6M	0000 I 022212 IX6Z	0000 I 022144 IX6ZM	0000 I 022216 IX8	0000 I 022145 IX8M
0000 I 022222 IX9	0000 I 022146 IX9M	0000 I 022150 IYFAR	0000 I 022162 IY	0000 I 022176 IZ
0000 I 022213 I3	0000 I 022205 I4	0000 I 022206 I5	0000 I 022271 I8	0000 I 022153 J
0002 I 003216 JIND	0000 I 022152 JINX	0002 I 003672 JIRANK	0000 I 022200 JSIG	0000 I 000067 JUNK
0002 I 000003 JUNK1	0000 I 000030 JUNK2	0000 I 022201 J1	0000 I 022207 J2	0000 I 022203 J3
0000 I 022211 J4	0000 I 022210 J5	0000 I 022261 J6	0000 I 022254 J7	0000 I 022253 J8
0000 I 022251 J9	0000 I 022157 K	0000 I 022235 KHOL	0000 I 000126 KON	0000 I 022214 K1
0000 I 022215 K2	0000 I 022252 K3	0000 I 022262 K4	0000 I 022323 K5	0000 I 022324 K6
0000 I 022325 K7	0000 I 022220 L	0000 I 022317 LL	0000 I 022256 L1	0000 I 022257 L2
0000 I 022260 L3	0000 I 022273 L4	0000 I 022274 L5	0000 I 022330 L6	0000 I 022255 L9
0000 I 022221 M	0000 I 000000 MON	0000 I 022160 MULT	0000 I 022303 N	0000 I 001342 NDEQT
0000 I 022242 NDE1	0000 I 022243 NDE2	0000 I 022244 NDE3	0000 I 022240 NDF	0000 I 022241 NDL
0000 I 022165 NE1	0000 I 022167 NE2	0000 I 022171 NE3	0000 I 022163 NF	0000 I 000140 NHOL
0000 I 022173 NL	0000 I 022161 NMULT	0000 I 022231 NSE1	0000 I 022332 NSE2	0000 I 022233 NSE3
0000 I 022272 NSF	0000 I 022234 NSL	0000 I 022223 NST	0000 I 022327 NX	0000 I 022307 N1
0000 I 022310 N2	0000 I 022311 N3	0000 R 022250 PAYROL	0000 R 002174 PROD	0000 R 004702 RPR
0000 R 014136 SEIH	0000 R 014270 SEZH	0000 R 014422 SE3H	0000 R 014004 SLH	0000 R 022247 SUM
0000 R 022326 SUM1	0000 R 001746 SUT	0000 R 015172 TCE	0000 R 015040 TCL	0000 R 022301 TIME
0000 R 022302 TIMET	0000 R 012426 T0J	0002 R 001474 TT	0002 R 002314 TTJ	0000 R 022304 TX
0002 R 002770 VPR	0000 R 012654 WPR	0000 R 014554 WUA	0000 R 022004 WUC	0000 R 014706 WUP
0000 R 022217 X	0000 R 021773 XJE1	0000 R 021776 XJE2	0000 R 022001 XJE3	0000 R 021770 XJL
0000 R 013556 XJUNK	0000 R 001015 XJUNK1	0000 R 006222 XMULT	0000 R 022316 XX	0000 R 022264 X1
0000 R 022245 X2	0000 R 022266 X3	0000 R 022320 X4	0000 R 022321 X5	0000 R 022270 X6
0000 R 022322 X7	0000 R 022267 X9	0000 R 022245 Y	0000 R 022313 Y1	0000 R 022314 Y2
0000 R 022315 Y3	0000 R 022306 Z	0000 R 022312 Z1		

00100	1*	C*****COMMON STATEMENTS*****	99
00101	2*	COMMON I,IX10,IX6,JUNK1(370)	100
00101	3*	C*****IX6**HIGHWAYS DEFINED BY ZONES	110
00103	4*	COMMON IHV(35),IHYS(35),IHYN(35)	111
00103	5*	C*****IX6Z** ZONES IN LISTED HIGHWAYS	120
00104	6*	COMMON IHZ(175),DLZ(175)	121
00104	7*	C*****IX8** ZONES IN AREA	130
00105	8*	COMMON IJ1(100)	131
00105	9*	C*****IX10** JOBS IN INVENTORY	140
00106	10*	COMMON IVLC(150),IVSZ(150),ITJ(150),CPR(150),VPR(150),JIND(150),I	141

00106	11*	IDTE(150),JRANK(150),IVNZ(150)	142
00106	12*	C*****MISCELLANEOUS**	200
00107	13*	DIMENSION MON(12),IDM(12),JUNK2(31),JUNK(31),KON(10),NHOL(12),	201
00107	14*	1 IW(370),DWEEK(7),HE1(20),HE2(20),XJUNK1(30)	202
00107	15*	C*****INPUT-OUTPUT GATES**	220
00110	16*	DIMENSION HOL(36),IGATE(36),IOUT(36)	222
00110	17*	C*****IX4** EQUIPMENT INVENTORY IN DEPOT	230
00111	18*	DIMENSION IEQ(25),IEQN(25),EQC(25),NDEQT(25),ISEQ(25)	231
00111	19*	C*****IX5** JOB TYPE	240
00112	20*	DIMENSION ITTYP(30),IWA(30),IWB(30),IWC(30),IWD(30),IESD(30),	241
00112	21*	1 ILD(30),SUT(30),ICRS(30),ICRN(30),HT1(30),HT2(30)	242
00112	22*	C*****IX5C** BASIC CREWS	250
00113	23*	DIMENSION PROD(110),IEO1(110),IEO2(110),IEO3(110),ILAB(110),HCST(1	251
00113	24*	110),HCOST(110),IEQS(110),IEQN(110)	252
00113	25*	C*****IX5E** BASIC CREW EQUIPMENT	260
00114	26*	DIMENSION IEQ(250),INO(250)	261
00114	27*	C*****IX9** RECURRING JOBS	270
00115	28*	DIMENSION IRTYP(80),IRMT(80),RPR(80),IRLC(80),IRSZ(80),IRNZ(80),	271
00115	29*	1 IRMIN(80),IRMAX(80),IRDL(80),IS(80),IRPER(80),IRNT(80),XMULT(80),	272
00115	30*	2 IPER(80),IRTPE(80)	273
00115	31*	C*****IX10** INVENTORY	280
00116	32*	DIMENSION IVTYP(150),IVMT(150),IVMIN(150),IVMAX(150),IVDL(150),IVN	281
00116	33*	IT(150),INDX(150),ICREW(150,6),IETC(150),IDELTA(150),TOJ(150),	282
00116	34*	2 INDEX(150),WPR(150),DPR(150),COST(150),XJUNK(150)	283
00116	35*	C*****MULTIPLE DIMENSIONS**	290
00117	36*	DIMENSION SLH(3,30),SE1H(3,30),SE2H(3,30),SE3H(3,30),WUA(3,30),	291
00117	37*	1 WUP(3,30),TCL(3,30),TCE(3,30),EQTOT(3,30),EQH(3,30,25)	292
00120	38*	DIMENSION XJL(3),XJE1(3),XJE2(3),XJE3(3),XUC(3,30)	3710
00121	39*	EQUIVALENCE (IRPER,IPER),(IRTYP,IRTPE),(INDX,INDEX),(HCST,HCOST)	3800
00122	40*	IFULL=0	3890
00123	41*	READ 905 (1,IX4M,IX5M,IX5CM,IX5EM,IX6M,IX6ZM,IX8M,IX9M,INVMAX,	3900
00123	42*	1 IYEAR)	3901
00140	43*	PRINT 931 (IX4M,IX5M,IX5CM,IX5EM,IX6M,IX6ZM,IX8M,IX9M,INVMAX)	3910
00153	44*	IWEEK=0	4000
00154	45*	JINX=0	4005
00155	46*	DO 410 I=1,INVMAX	4100
00160	47*	DO 410 J=1,6	4200
00163	48*	410 ICREW(I,J)=0	4300
00166	49*	DO 400 I=1,INVMAX	4400
00171	50*	CPR(I)=.000001	4410
00172	51*	400 IVTYP(I)=9999	4500
00174	52*	IX10=1	4600
00175	53*	KON(10)=1	4700
00176	54*	DO 16 I=1,9	4800
00201	55*	J=10-I	4900
00202	56*	16 KON(J)=8*KON(J+1)	5000
00204	57*	READ 905 J,(NHOL(I),I=1,12)	5100
00213	58*	NHOL=1	5200
00214	59*	READ 909 ICLR,ISDAY,(DWEEK(I),I=1,7)	5300
00224	60*	READ 900 (MON(I),I=1,12)	5400
00232	61*	READ 901 (IDM(I),I=1,12)	5500
00240	62*	K=0	5501
00241	63*	DO 45 I=1,12	5502
00244	64*	IF (NHOL(I).EQ.999) GO TO 65	5503
00246	65*	45 K=K+1	5504
00250	66*	65 PRINT 932 (NHOL(I),I=1,K)	5505
00256	67*	MULT=5-ISDAY	5510
00257	68*	IF (MULT.LT.0) MULT=0	5515

00261	69*	NMULT=MULT	5520
00262	70*	1102 I1=0	5535
00263	71*	IOUT(1)=1	5600
00264	72*	READ 900 (HOL(1),I=1,36)	5700
00272	73*	1 READ 901 (IGATE(1),I=1,36)	5800
00300	74*	IF (IOUT(1).LT.1) GO TO 2	5900
00302	75*	PRINT 950 (HOL(1),(IGATE(1),I=1,36))	6000
00311	76*	2 IF (IGATE(2).LT.1) GO TO 3	6100
00313	77*	READ 901 (IOUT(1),I=1,36)	6200
00321	78*	3 IF (IOUT(2).LT.1) GO TO 46	6300
00323	79*	PRINT 950 (HOL(2),(IOUT(1),I=1,36))	6400
00332	80*	46 IF (IGATE(3).LT.1) GO TO 47	6500
00334	81*	READ 906 HE1(1),HE2(1),I,NF,CF	6600
00343	82*	READ 906 HE1(2),HE2(2),I,NE1,CE1	6700
00352	83*	READ 906 HE1(3),HE2(3),I,NF2,CE2	6800
00361	84*	READ 906 HE1(4),HE2(4),I,NE3,CE3	6900
00370	85*	READ 906 HE1(5),HE2(5),I,NL,CL	7000
00377	86*	47 IF (IOUT(3).LT.1) GO TO 48	7100
00401	87*	PRINT 974	7110
00403	88*	PRINT 963	7120
00405	89*	PRINT 975	7130
00407	90*	PRINT 928 (HE1(1),HE2(1),NF,CF)	7200
00415	91*	PRINT 928 (HE1(2),HE2(2),NE1,CE1)	7210
00423	92*	PRINT 928 (HE1(3),HE2(3),NF2,CE2)	7220
00431	93*	PRINT 928 (HE1(4),HE2(4),NF3,CE3)	7230
00447	94*	PRINT 928 (HE1(5),HE2(5),NL,CL)	7240
00445	95*	48 IF (IGATE(4).LT.1) GO TO 49	7300
00447	96*	DO 52 I=1,IX4M	7400
00452	97*	READ 906 (HE1(I),HE2(I),IEQ1(I),IEQNO(I),EQC(I))	7500
00452	98*	C MAXIMUM EQUIPMENT INVENTORY	7600
00461	99*	IF (IEQ1(I).EQ.999) GO TO 49	7700
00463	100*	52 IX4=1	7800
00465	101*	PRINT 929	7810
00467	102*	STOP	7820
00470	103*	49 IF (IOUT(4).LT.1) GO TO 4	7900
00472	104*	PRINT 950 (HOL(4))	8000
00475	105*	DO 50 I=1,IX4	8100
00500	106*	PRINT 976 (HE1(I),HE2(I),I,IEQ1(I),IEQNO(I),EQC(I))	8200
00510	107*	50 CONTINUE	8300
00512	108*	4 IF (IGATE(5).LT.1) GO TO 20	8400
00514	109*	IF (IOUT(5).EQ.1) PRINT 933	8410
00517	110*	I=1	8500
00517	111*	C JOB TYPE INDEX	8600
00520	112*	I1=1	8700
00520	113*	C CREW TYPE INDEX OVER ALL NOT WITHIN JOB	8800
00521	114*	I2=1	8900
00521	115*	C EQUIPMENT TYPE INDEX	9000
00522	116*	5 READ 902 (ITYP(I),IWA(I),IWB(I),IWC(I),IWD(I),IESD(I),ILD(I),SUT(9100
00522	117*	I),HT1(I),HT2(I))	9200
00536	118*	ICRS(I)=1	9300
00537	119*	IF (ITYP(I).EQ.9999) GO TO 20	9400
00541	120*	IX5=1	9500
00542	121*	IF (I.GT.IX5M) GO TO 9200	9510
00542	122*	C MAXIMUM JOB TYPES	9600
00544	123*	IF (IOUT(5).LT.1) GO TO 6	9700
00546	124*	PRINT 951 (HT1(I),HT2(I),ITYP(I),I,IWA(I),IWB(I),IWC(I),IWD(I),IE	9800
00546	125*	ISD(I),ILD(I),SUT(I),ICRS(I))	9900
00564	126*	PRINT 952	10000

00566	127*	6 JSIG=0	10100
00566	128*	C CREW STARTING INDEX	10200
00567	129*	READ 903 JUNK1(I),PROD(I),IEO1(I),IEO2(I),IEO3(I),ILAB(I),(J	10300
00567	130*	JUNK1(J),J=2,14),JUNK2(I),PROD(I+1),IEO1(I+1),IEO2(I+1),IEO3(I+1	10400
00567	131*	21),ILAB(I+1),(JUNK2(J),J=2,14)	10500
00615	132*	8 IEQS(I)=I2	10600
00616	133*	ICRN(I)=I1	10700
00617	134*	IX5C=I1	10800
00620	135*	IF (I1.GE.IX5CM) GO TO 9210	10810
00620	136*	C MAXIMUM BASIC CREW	10900
00622	137*	J3=I2	11000
00623	138*	HCST(I)=IEO1(I)*CE1+IEO2(I)*CE2+IEO3(I)*CE3+ILAB(I)*CL	11100
00624	139*	DO 9 J1=2,16,2	11200
00627	140*	IF (JUNK1(J1).GE.97) GO TO 10	11300
00631	141*	IF (JUNK1(J1).EQ.0) GO TO 10	11400
00633	142*	IEQN(I)=I2	11500
00634	143*	IX5F=I2	11600
00635	144*	IF (I2.GT.IX5EM) GO TO 9220	11610
00637	145*	DO 13 I4=1,IX4	11700
00642	146*	I5=I4	11800
00643	147*	IF (IEO1(I5).EQ.JUNK1(J1)) GO TO 7	11900
00645	148*	13 CONTINUE	12000
00647	149*	GO TO 9370	12100
00650	150*	7 IEQ(I2)=I5	12200
00651	151*	INO(I2)=JUNK1(J1+1)	12300
00652	152*	HCST(I1)=HCST(I1)+INO(I2)*EQC(I5)	12400
00653	153*	I2=I2+1	12500
00653	154*	CLIMT ON PRINT	12600
00654	155*	9 J2=J1+2	12700
00656	156*	10 IF (IOUT(5).LT.1) GO TO 11	12800
00660	157*	J5=I2-1	12900
00661	158*	PRINT,953 (I,I,PROD(I),IEO1(I),IEO2(I),IEO3(I),ILAB(I),HCST(I	13000
00661	159*	I1),IEQS(I),IEQN(I),((IEQ(J4),INO(J4)),J4=J3,J5))	13100
00702	160*	11 I1=I1+1	13200
00703	161*	IF (JUNK1(J2).EQ.99) GO TO 15	13300
00705	162*	IF (JSIG.EQ.1) GO TO 6	13400
00707	163*	14 DO 12 J1=1,14	13500
00712	164*	12 JUNK1(J1)=JUNK2(J1)	13600
00714	165*	JSIG=1	13700
00715	166*	GO TO 8	13800
00716	167*	15 I=I+1	13900
00717	168*	GO TO 5	14000
00720	169*	20 IF (IGATE(6).LT.1) GO TO 24	14100
00722	170*	I=1	14200
00722	171*	C INDEX-INDEX	14300
00723	172*	I1=1	14400
00723	173*	C LIST INDEX	14500
00724	174*	21 IHYS(I)=I1	14600
00725	175*	READ 904 IHY(I), (JUNK1(K),XJUNK(K),K=1,11)	14700
00735	176*	IF (I.GT.IX6M) GO TO 9230	14710
00737	177*	IF (IHYS(I).EQ.999) GO TO 24	14800
00741	178*	K=I-1	14900
00742	179*	IF (K.EQ.0) GO TO 22	14950
00744	180*	IF (IHYS(I).NE.IHYS(K)) GO TO 22	15000
00746	181*	I=K	15100
00747	182*	22 IX6=I	15200
00750	183*	DO 23 K=1,11	15300
00750	184*	C MAXIMUM HIGHWAY LIST	15400

00753	185*		IF (JUNK1(K).EQ.999) GO TO 39	15500
00755	186*		IHZ(I1)=JUNK1(K)	15600
00756	187*		DLZ(I1)=XJUNK(K)	15700
00757	188*		IHYN(I1)=11	15800
00760	189*		IX6Z=11	15900
00761	190*		IF (I1.GT.IX6ZM) GO TO 9240	15910
00763	191*	23	I1=I1+1	16000
00765	192*	39	I=I+1	16100
00766	193*		GO TO 21	16200
00767	194*	24	IF (IOUT(6).LT.1) GO TO 28	16300
00771	195*		PRINT 995	16310
00773	196*		PRINT 974	16320
00775	197*		DO 25 J=1,IX6	16400
01000	198*		I1=IHYS(J)	16500
01001	199*		I2=IHYN(J)	16600
01002	200*		I3=J	16700
01003	201*		PRINT 954(HOL(6),I3,IHY(I3),I1,I2,(IHZ(I4),I4=I1,I2))	16800
01016	202*		PRINT 955(DLZ(I41,I4=I1,I2)	16900
01024	203*	25	CONTINUE	17000
01026	204*	28	IF (IGATE(7).LT.1) GO TO 34	17100
01030	205*		DO 37 I=1,366	17200
01033	206*	37	IW(I)=0	17300
01035	207*	29	READ 905 I,(JUNK(K),K=1,25)	17400
01044	208*		IF (I.EQ.999) GO TO 32	17410
01046	209*		DO 31 K=1,25	17500
01051	210*		IF (JUNK(K)=998) 30,29,32	17600
01054	211*	30	J=JUNK(K)	17700
01055	212*		IF (IW(J).EQ.0) GO TO 31	17800
01057	213*		PRINT 959 (J,IW(J),I)	17900
01064	214*	31	IW(J)=1	18000
01066	215*		GO TO 29	18100
01067	216*	32	DO 33 I=1,369	18200
01072	217*		IF (IW(I+1).GT.0) GO TO 33	18300
01074	218*		IW(I+1)=IW(I)	18400
01075	219*	33	CONTINUE	18500
01077	220*	34	IF (IOUT(7).LT.1) GO TO 40	18600
01101	221*		PRINT 956	18700
01103	222*		I=4	18800
01104	223*		JUNK1(I)=1	18900
01105	224*		DO 38 J=1,30	19000
01110	225*	38	JUNK1(J+1)=JUNK1(J)+1	19100
01112	226*		PRINT 957 (JUNK1(J),J=1,31)	19200
01120	227*		PRINT 965 (IW(I1),I1=1,3)	19300
01126	228*		DO 36 J=1,12	19400
01131	229*		K=J	19500
01132	230*		K1=IDM(J)	19600
01133	231*		DO 35 K2=1,K1	19700
01136	232*		JUNK(K2)=IW(I)	19800
01137	233*	35	I=I+1	19900
01141	234*		PRINT 958 (MON(K),(JUNK(K2),K2=1,K1))	20000
01150	235*	36	CONTINUE	20100
01152	236*	40	IF (IGATE(8).LT.1) GO TO 43	20200
01154	237*		K=1	20300
01155	238*	41	READ 901 (JUNK1(J),J=1,40)	20400
01163	239*		DO 42 J=1,40	20500
01166	240*		IF (JUNK1(J).EQ.98) GO TO 43	20600
01170	241*		IX8=K	20700
01171	242*		X=JUNK1(J)	20800

01172	243*	TT(K)=X/60.0	20900
01173	244*	IF (JUNK1(J).EQ.99) TT(K)=99999.9	20910
01175	245*	IF (JUNK1(J).EQ.0) TT(K)=99999.9	20920
01177	246*	42 K=K+1	21000
01201	247*	GO TO 41	21100
01202	248*	43 IF (IOUT(8).LT.1) GO TO 51	21200
01204	249*	PRINT 950	21210
01206	250*	PRINT 960	21220
01210	251*	PRINT 975	21230
01212	252*	K=1	21300
01213	253*	44 DO 44 L=1,10	21310
01216	254*	JUNK1(L)=K	21400
01217	255*	XJUNK(L)=TT(K)	21410
01220	256*	IF (TT(K).GT.0.0) GO TO 44	21420
01222	257*	TT(K)=0.0	21430
01223	258*	JUNK1(L)=99999	21440
01224	259*	44 K=K+1	21500
01226	260*	M=10	21550
01227	261*	IF (K.GT.94) M=4	21600
01231	262*	PRINT 992 ((JUNK1(L),XJUNK(L)),L=1,M)	21650
01240	263*	IF (K.LE.94) GO TO 441	21700
01242	264*	51 IF (IGATE(9).LT.1) GO TO 55	21800
01242	265*	C READ RECURRING JOBS	21900
01244	266*	DO 54 I=1,IX9M	22000
01247	267*	READ 907 (IRTP(I),IRMT(I),RPR(I),IRLC(I),IRSZ(I),IRNZ(I),IRMIN(I)	22100
01247	268*	,IRMAX(I),IRDL(I),IS(I),IRPER(I),IRNT(I))	22200
01265	269*	IF (IRTP(I).EQ.9999.AND.1.EQ.1) IX9=1	22300
01267	270*	IF (IRTP(I).EQ.9999) GO TO 55	22400
01271	271*	IX9=1	22500
01272	272*	DO 53 J=1,IX5	22600
01275	273*	IF (IRTP(I).NE.IRTYP(J)) GO TO 53	22700
01277	274*	IF (IESD(J).LT.ILD(J)) GO TO 56	22800
01301	275*	NTST=0	22900
01302	276*	IF (IRPER(J).NE.0) GO TO 315	23000
01304	277*	PRINT 969	23200
01306	278*	STOP	23300
01307	279*	315 IF (IESD(J)-365+NTST*IPER(J)) 300,305,310	23400
01312	280*	300 NTST=NTST+1	23500
01313	281*	GO TO 315	23600
01314	282*	310 IS(I)=1	23700
01315	283*	XMULT(I)=(IESD(J)-365+NTST*IPER(J))/IPER(J)	23800
01316	284*	GO TO 54	23900
01317	285*	305 IS(I)=1	24000
01320	286*	XMULT(I)=1.0	24100
01321	287*	GO TO 54	24200
01322	288*	56 IS(I)=IESD(J)	24300
01323	289*	XMULT(I)=1.0	24400
01324	290*	GO TO 54	24500
01325	291*	53 CONTINUE	24600
01326	292*	*DIAGNOSTIC* THE TRANSFER TO 9960 IS BAD BECAUSE 9960 IS NOT IN THE INNERMOST DO OF A NEST.	
01327	292*	9960 PRINT 996	24700
01331	293*	PRINT 966 (I,IRTP(I),IRMT(I),RPR(I),IRLC(I),	24800
01331	294*	IRSZ(I),IRNZ(I),IRMIN(I),IRMAX(I),IRDL(I),IS(I),IRPER(I),IRNT(I))	24801
01350	295*	STOP	24810
01351	296*	54 CONTINUE	24900
01353	297*	GO TO 9960	25100
01354	298*	55 IF (IOUT(9).LT.1) GO TO 58	25200
01356	299*	PRINT 994	25300

01360	300*	PRINT 974	25310
01362	301*	DO 57 I=1,IX9	25400
01365	302*	PRINT 966 (I,IRTP(I),IRMT(I),RPR(I),IRLC(I),	25550
01365	303*	IRSZ(I),IRNZ(I),IRMIN(I),IRMAX(I),IRDL(I),IS(I),IRPER(I),IRNT(I))	25600
01404	304*	57 CONTINUE	25700
01406	305*	58 JLAST=0	25800
01407	306*	PRINT 931 (IX4M,IX5M,IX5CM,IX5EM,IX6M,IX6ZM,IX8M,IX9M)	25810
01421	307*	PRINT 935 (IX4,IX5,IX5C,IX5E,IX6,IX6Z,IX8,IX9)	25812
01433	308*	IDAY=0	25900
01434	309*	ISDAY=ISDAY-1	26000
01435	310*	I1=2	26100
01436	311*	IF (ICLR.EQ.0) I1=3	26200
01440	312*	IPLAN=0	26210
01441	313*	I2=1	26220
01441	314*	C ENTRY AT DAY CHANGE	26225
01442	315*	700 DO 703 I=12,I1	26300
01445	316*	XJL(I)=0.0	26310
01446	317*	XJE1(I)=0.0	26320
01447	318*	XJE2(I)=0.0	26330
01450	319*	XJE3(I)=0.0	26340
01451	320*	DO 702 J=1,IX5	26500
01451	321*	C OVER ALL JOB TYPES	26600
01454	322*	WUC(I,J)=0.0	26650
01455	323*	SLH(I,J)=0.	26700
01456	324*	SE1H(I,J)=0.	26800
01457	325*	SE2H(I,J)=0.	26900
01460	326*	SE3H(I,J)=0.	27000
01461	327*	WUA(I,J)=0.	27100
01462	328*	TCL(I,J)=0.	27200
01463	329*	TCE(I,J)=0.	27300
01464	330*	EQTOT(I,J)=0.	27400
01465	331*	1104 DO 701 K=1,IX4	27500
01470	332*	ISEQ(K)=0	27510
01471	333*	701 EQH(I,J,K)=0.	27600
01473	334*	702 CONTINUE	27700
01475	335*	703 CONTINUE	27800
01477	336*	NSF=0	27810
01500	337*	I1=0	27811
01501	338*	INVSUM=0	A27811
01502	339*	DO 1038 I=1,IX10	27812
01505	340*	IF(VPR(I).LE.0.0) IVTYP(I)=0	27813
01507	341*	J=IVTYP(I)	27814
01510	342*	IF (J.EQ.0) GO TO 1036	27815
01512	343*	IF (J.EQ.9999) GO TO 1040	27816
01514	344*	INVSUM=INVSUM+1	A27816
01515	345*	I1=0	27817
01516	346*	GO TO 1038	27818
01517	347*	1036 IF (I1.EQ.0) I1=1	27819
01521	348*	1038 CONTINUE	27820
01523	349*	1040 IF (I1.NE.0) IX10=I1	27821
01525	350*	IVTYP(IX10)=9999	27822
01526	351*	NSE1=0	27824
01527	352*	NSE2=0	27830
01530	353*	NSE3=0	27840
01531	354*	NSL=0	27850
01532	355*	KHOL=0	27860
01533	356*	DO 1042 I=1,IX10	27861
01536	357*	IF(VPR(I).GT.0.0) GO TO 1042	27862

01540	358*	DO 1043 J=1,6	27863
01543	359*	ICREW(I,J)=0	27864
01544	360*	1043 CONTINUE	27865
01546	361*	1042 CONTINUE	27866
01550	362*	IF (IPLAN.EQ.1) GO TO 709	27868
01552	363*	IDAY=IDAY+1	27870
01553	364*	ISDAY=ISDAY+1	27880
01554	365*	IF (ISDAY.EQ.8) ISDAY=1	27880
01556	366*	IF (IDAY.EQ.1) GO TO 69	27881
01560	367*	709 IF (IDAY.NE.NHOL(IHOL)) GO TO 442	27890
01562	368*	IF (ISDAY.LT.6) GO TO 440	27900
01564	369*	NHOL(IHOL)=NHOL(IHOL)*I	27910
01565	370*	GO TO 442	27920
01566	371*	440 KHOL=1	27930
01567	372*	442 IF (ISDAY.NE.1) GO TO 69	27940
01571	373*	IF (IDAY.EQ.1) GO TO 69	27952
01573	374*	DO 444 I=1,IX10	27960
01576	375*	JIND(I)=0	27970
01577	376*	IF (IVTYP(I).EQ.0) JIND(I)=9	27980
01601	377*	444 CONTINUE	27990
01603	378*	ISPEC=0	27993
01604	379*	MULT=5	28000
01605	380*	IF (NHOL(IHOL).LT.IDAY+5) MULT=4	28010
01607	381*	NMULT=MULT	28015
01610	382*	69 ISIG=1	28020
01611	383*	70 IF (ILAST.GT.IDAY) GO TO 80	28000
01611	384*	C READ REGULAR JOBS	28900
01613	385*	GO TO 100	29000
01614	386*	71 READ 907 (IVTYP(I),IVMT(I),VPR(I),IVLC(I),IVSZ(I),IVNZ(I),IVMIN(I)	29300
01614	387*	1,IVMAX(I),IVDL(I),IDTE(I),IVNT(I))	29400
01631	388*	IVDL(I)=IVDL(I)+IDTE(I)	29500
01632	389*	IF (IVTYP(I).EQ.9999) GO TO 63	29600
01634	390*	DO 62 K=1,IX5	29700
01637	391*	INDX(I)=K	29800
01640	392*	IF (INVSUM.GT.IVMAX-1) GO TO 80	29810
01642	393*	IF (IVTYP(I).EQ.ITTYP(K)) GO TO 63	29900
01644	394*	62 CONTINUE	30000
01646	395*	GO TO 302	30100
01647	396*	63 IF (IDTE(I).GE.ILAST) GO TO 630	30200
01651	397*	PRINT 936 (ILAST,IDTE(I))	30210
01655	398*	PRINT 966 (I,IVTYP(I),IVMT(I),VPR(I),IVLC(I),	30220
01655	399*	IVSZ(I),IVNZ(I),IVMIN(I),IVMAX(I),IVDL(I),IDTE(I))	30230
01672	400*	GO TO 631	30290
01673	401*	630 ILAST=IDTE(I)	30300
01674	402*	631 IF (IDTE(I).GT.365) GO TO 80	30400
01676	403*	JSIG=0	30500
01677	404*	GO TO 150	30600
01700	405*	64 IF (IOUT(10).LT.1) GO TO 72	30700
01702	406*	PRINT 966 (I,IVTYP(I),IVMT(I),VPR(I),IVLC(I),	30800
01702	407*	IVSZ(I),IVNZ(I),IVMIN(I),IVMAX(I),IVDL(I),IDTE(I),INDX(I))	30900
01720	408*	72 GO TO 70	31000
01721	409*	80 ISIG=2	31100
01721	410*	C ENTRY FOR RECURRING JOBS	31200
01722	411*	J=1	31300
01723	412*	175 IF (IS(J).LE.7) GO TO 100	31400
01725	413*	704 IF ((IS(J)+IFULL).NE.(IDAY+7)) GO TO 84	31500
01727	414*	100 I=JINX	31550
01730	415*	IF (I.NE.0) GO TO 102	31575

01732	416*	DO 101 I1=1,INVMAX	31600
01735	417*	L=11	31700
01736	418*	IF (IVTYP(I).EQ.0000) GO TO 102	31800
01740	419*	IF (IVTYP(I).NE.9999) GO TO 101	31900
01742	420*	IVTYP(I+1)=9999	32000
01743	421*	IX10=IX10+1	32100
01744	422*	IF (IX10.GT.INVMAX-2) GO TO 325	32200
01746	423*	GO TO 102	32300
01747	424*	101 CONTINUE	32600
01751	425*	102 JINX=0	32650
01752	426*	IF (ISIG-2) 71,81,103	32700
01755	427*	103 IF (ISIG-4) 91,93,96	32800
01760	428*	81 IF (IRTP(J).NE.2) GO TO 302	32900
01762	429*	IF (IS(J).LT.7) GO TO 304	33000
01764	430*	IF (ISDAY.GT.5) GO TO 61	33100
01766	431*	GO TO 301	33200
01767	432*	304 J1=IS(J)+ISDAY-1	33300
01770	433*	J2=J1/7	33400
01771	434*	J3=J1-7*J2	33500
01772	435*	IF (J3.EQ.6.OR.J3.EQ.0) GO TO 61	33600
01774	436*	301 IF (IS(J).NE.NHOL(IHOL)) GO TO 302	33700
01776	437*	61 IS(J)=IS(J)+IPER(J)	33710
01777	438*	GO TO 175	33720
02000	439*	302 IF (INVSUM.GT.INVMAX-2) GO TO 325	33730
02002	440*	IVTYP(I)=IRTP(J)	33800
02003	441*	IVMT(I)=IRMT(J)	33900
02004	442*	VPR(I)=XMULT(J)*RPR(J)	34000
02005	443*	XMULT(J)=1.0	34100
02006	444*	IVLC(I)=IRLC(J)	34200
02007	445*	IVSZ(I)=IRSZ(J)	34300
02010	446*	IVNZ(I)=IRNZ(J)	34400
02011	447*	IVMIN(I)=IRMIN(J)	34500
02012	448*	IVMAX(I)=IRMAX(J)	34600
02013	449*	IVDL(I)=IRDL(J)+IS(J)	34700
02014	450*	IDTE(I)=IS(J)	34800
02015	451*	IVNT(I)=IRNT(J)	34900
02016	452*	JSIG=1	35000
02017	453*	DO 303 K=1,IX5	35300
02022	454*	INDX(I)=K	35400
02023	455*	IF (IVTYP(I).EQ.ITTYP(K)) GO TO 150	35500
02025	456*	303 CONTINUE	35600
02027	457*	PRINT 927	35700
02031	458*	PRINT 966 (I,IVTYP(I),IVMT(I),VPR(I),IVLC(I),	35800
02031	459*	IVSZ(I),IVNZ(I),IVMIN(I),IVMAX(I),IVDL(I),IDTE(I),INDX(I))	35900
02047	460*	3030 IVTYP(I)=0	35950
02050	461*	JINX=1	35960
02051	462*	VPR(I)=0.0	35975
02052	463*	GO TO 84	35980
02053	464*	150 CALL HZONE	36000
02054	465*	X=99./60.	36010
02055	466*	IF (TTJ(I).LT.X) GO TO 155	36015
02057	467*	PRINT 993	36020
02061	468*	PRINT 966 (I,IVTYP(I),IVMT(I),VPR(I),IVLC(I),	36030
02061	469*	IVSZ(I),IVNZ(I),IVMIN(I),IVMAX(I),IVDL(I),IDTE(I),INDX(I))	36031
02077	470*	GO TO 3030	36040
02100	471*	155 J1=INDX(I)	37200
02101	472*	TOJ(I)=8.0-SUT(J1)-2.0*TTJ(I)	37300
02102	473*	IF (JSIG.EQ.0) GO TO 64	37400

02104	474*	IS(J)=IS(J)+IPER(J)	38100
02105	475*	K=INDX(I)	38200
02106	476*	IF (ILD(K).LT.IESD(K)) GO TO 82	38300
02110	477*	IF (IS(J).LE.ILD(K)) GO TO 820	38400
02112	478*	IS(J)=367	38500
02113	479*	GO TO 83	38600
02114	480*	820 IF (IS(J).LT.IESD(K)) GO TO 830	38650
02116	481*	82 IF (IS(J).LE.ILD(K)) GO TO 83	38700
02120	482*	IF (IS(J).GE.IESD(K)) GO TO 83	38800
02122	483*	830 IS(J)=IESD(K)	38900
02123	484*	83 IF (IOUT(1).LT.1) GO TO 175	39000
02125	485*	PRINT 966 (I,IVTYP(I),IVMT(I),VPR(I),IVLC(I),	39100
02125	486*	IVSZ(I),IVNZ(I),IVMIN(I),IVMAX(I),IVDL(I),IDTE(I),INDX(I))	39200
02143	487*	GO TO 175	39300
02144	488*	325 IFULL=IFULL+1	39310
02145	489*	PRINT 925 (IFULL,IDAY)	39320
02151	490*	J=IX9+10	39330
02152	491*	84 J=J+1	39400
02153	492*	IF (J.LE.IX9) GO TO 175	39500
02155	493*	IF (IFULL.EQ.0) GO TO 840	39502
02157	494*	IF (J.GT.IX9) GO TO 840	39504
02161	495*	IFULL=IFULL-1	39506
02162	496*	GO TO 70	39508
02163	497*	840 IF (ISDAY.NE.1.AND.IDAY.NE.1) GO TO 3090	39510
02165	498*	IF (MULT.EQ.0) GO TO 3090	39515
02167	499*	IF (IPLAN.EQ.1) GO TO 3090	39520
02171	500*	DO 3020 I=1,IX4	39525
02174	501*	3020 NDEQT(I)=MULT*IEQNO(I)=ISEQ(I)	39530
02176	502*	NDF=MULT*NF=NSF	39535
02177	503*	NDL=MULT*NL=NSL	39537
02200	504*	NDE1=MULT*NE1=NSE1	39540
02201	505*	NDE2=MULT*NE2=NSE2	39545
02202	506*	NDE3=MULT*NE3=NSE3	39550
02203	507*	DO 3095 J=1,IX5	39557
02206	508*	WUP(I,J)=0.0	39558
02207	509*	3095 WUP(2,J)=0.0	39559
02211	510*	GO TO 2022	39560
02212	511*	3090 MULT=1	39562
02213	512*	IPLAN=0	39565
02214	513*	90 IF (INVSUM.GT.INVMAX=2.AND.IW(IDAY+3).GT.1.AND.IW(IDAY+3).LT.4)	39590
02214	514*	I GO TO 3096	39591
02216	515*	IF (IW(IDAY+3).NE.3) GO TO 95	39600
02220	516*	ISIG=3	39700
02221	517*	GO TO 100	39800
02222	518*	91 IVTYP(I)=3000	39900
02223	519*	VPR(I)=1.0	39910
02224	520*	IDTE(I)=IDAY	40000
02225	521*	IF (IOUT(12).LT.1) GO TO 92	40100
02227	522*	PRINT 954 (HOL(12),I,IW(IDAY+3),IVTYP(I))	40200
02235	523*	92 ISIG=4	40300
02236	524*	GO TO 100	40400
02237	525*	93 IVTYP(I)=3500	40500
02240	526*	IDTE(I)=IDAY+1	40600
02241	527*	VPR(I)=1.0	40610
02242	528*	IF (IOUT(13).LT.1) GO TO 105	40700
02244	529*	PRINT 954 (HOL(13),I,IW(IDAY+3),IVTYP(I))	40800
02252	530*	GO TO 105	40900
02253	531*	95 IF (IW(IDAY+3).NE.2) GO TO 105	41000

02255	532.	ISIG=5	41100
02256	533.	GO TO 100	41200
02257	534.	3096 PRINT 926 (IDAY,IW(IDAY+3))	41210
02263	535.	GO TO 105	41220
02264	536.	96 IVTYP(I)=2000	41300
02265	537.	IDTE(I)=IDAY	41400
02266	538.	VPR(I)=1.0	41410
02267	539.	IF (ICUT(I4),LT,1) GO TO 105	41500
02271	540.	PRINT 954 (HOL(I4),1,IW(IDAY+3),IVTYP(I))	41600
02277	541.	105 ISPEC=0	41700
02300	542.	ISIG=0	41710
02301	543.	DO 124 I=1,IX10	41715
02304	544.	I1=1	41720
02305	545.	JIND(I)=0	41725
02306	546.	IF (IDAY,LT,IDTE(I)) GO TO 452	41730
02310	547.	J=IVTYP(I)	41740
02311	548.	IF (J,EQ,0,OR,J,EQ,9999) GO TO 452	41745
02313	549.	IF (J,EQ,2000,OR,J,EQ,3000) GO TO 250	41750
02315	550.	IF (J,EQ,3500) GO TO 1046	41760
02317	551.	IF (ISDAY.GT,5,OR,KHOL,EQ,1) GO TO 452	41765
02321	552.	GO TO 453	41767
02322	553.	1046 ISIG=11	41770
02323	554.	GO TO 124	41780
02324	555.	452 JIND(I)=9	41900
02324	556.	C JOB IS NOT YET DISCOVERED	42000
02325	557.	GO TO 123	42100
02326	558.	453 IF (J,EQ,1000) GO TO 454	42200
02326	559.	C RELEASE AUXILIARY CREWS	42300
02330	560.	Y=VPR(I)	42400
02331	561.	DO 112 J=1,6	42500
02334	562.	IF (ICREW(I,J)) 111,113,112	42600
02337	563.	111 ICREW(I,J)=0	42700
02340	564.	112 CONTINUE	42800
02342	565.	113 K=IW(IDAY+3)	43300
02343	566.	CPR(I)=.0000001	43350
02344	567.	J=INDEX(I)	43400
02345	568.	K1=0	43500
02346	569.	IWX=IWA(J)	43600
02347	570.	114 K1=K1+1	43700
02350	571.	K2=IWX/KON(K)	43800
02351	572.	K2=(IWX-K2*KON(K))/KON(K+1)	43900
02352	573.	IF (K2,EQ,0) GO TO 123	44000
02354	574.	IF (K1-2) 116,117,115	44100
02357	575.	115 IF (K1-4) 118,119,119	44200
02362	576.	116 IWX=IWB(J)	44300
02363	577.	K=IW(IDAY+2)	44400
02363	578.	C DAY -1	44500
02364	579.	GO TO 114	44600
02365	580.	117 IWX=IWC(J)	44700
02366	581.	K=IW(IDAY+1)	44800
02366	582.	C DAY -2	44900
02367	583.	GO TO 114	45000
02370	584.	118 IWX=IWD(J)	45100
02371	585.	K=IW(IDAY)	45200
02371	586.	C DAY -3	45300
02372	587.	GO TO 114	45400
02373	588.	119 SUM=0.0	45600
02374	589.	DO 121 J=1,6	45700

02377	590*	J1=ICREW(I,J)	45800
02400	591*	IF (J1.EQ.0) GO TO 122	45900
02402	592*	121 SUM=SUM+PROD(J1)	46000
02404	593*	122 IF (SUM.LE.0.0) GO TO 123	46100
02406	594*	X=TOJ(I)*SUM	46200
02407	595*	J1=(Y/X)+0.5	46300
02410	596*	Y=Y-X	46400
02411	597*	IF (Y.LE.0.0) Y=0.0	46500
02413	598*	IETC(I)=IDAY+J1	46600
02414	599*	IDELTA(I)=IVDL(I)-IETC(I)	46700
02415	600*	GO TO 124	46900
02416	601*	454 JIND(I)=1	46910
02417	602*	123 IETC(I)=10000	47300
02420	603*	IDELTA(I)=10000	47400
02421	604*	124 CONTINUE	47500
02423	605*	IF (ISIG.EQ.0) GO TO 110	47510
02425	606*	I1=ISIG	47520
02426	607*	250 ISPEC=1	47530
02427	608*	J=IVTYP(I1)	47535
02430	609*	DO 450 K1=1,IX5	47540
02433	610*	K=K1	47550
02434	611*	IF (J.EQ.ITYP(K1)) GO TO 451	47560
02436	612*	450 CONTINUE	47570
02440	613*	PRINT 927	47571
02442	614*	PRINT 966 (I1,IVTYP(I1),IVMT(I1),VPR(I1),IVLC(I1),IVSZ(I1),	47572
02442	615*	IVNZ(I1),IVMIN(I1),IVMAX(I1),IVDL(I1),IDTE(I1),INDX(I1))	47573
02460	616*	IVTYP(I1)=0	47576
02461	617*	VPR(I1)=0.0	47577
02462	618*	451 INDX(I1)=K	47580
02463	619*	110 DO 139 I=1,IX4	47600
02463	620*	C DAILY INVENTORY IGNORES PERMANENT CREWS INITIALLY	47700
02466	621*	139 NDEQ(I)=MULT*IEQNO(I)=ISEQ(I)	47800
02470	622*	NDF=MULT*NF-NSF	47900
02471	623*	NDE1=MULT*NE1=NSE1	48000
02472	624*	NDE2=MULT*NE2=NSE2	48100
02473	625*	NDE3=MULT*NE3=NSE3	48200
02474	626*	NDL=MULT*NL=NSL	48300
02475	627*	PAYROL=MULT*(NF*CF+NL*CL+NE1*CE1+NE2*CE2+NE3*CE3)*8.0	48305
02476	628*	IF (NDL+NDE1+NDE2+NDE3.LE.0) GO TO 770	48310
02500	629*	IF (ISPEC.EQ.0) GO TO 106	48400
02502	630*	K=INDX(I1)	48710
02503	631*	J1=ICRS(K)	49100
02504	632*	J2=ICRN(K)	49200
02505	633*	DO 436 J3=J1,J2	49300
02510	634*	J=IVTYP(I1)	49350
02511	635*	J4=IEQS(J3)	49400
02512	636*	J5=IEQN(J3)	49500
02513	637*	J9=ILAB(J3)	49510
02514	638*	K1=IEO1(J3)	49520
02515	639*	K2=IEO2(J3)	49530
02516	640*	K3=IEO3(J3)	49540
02517	641*	J8=0	49590
02520	642*	DO 426 J7=1,1000	49600
02520	643*	C MULTIPLE OF BASIC CREW	49700
02523	644*	L9=J7*J9	49710
02524	645*	L1=J7*K1	49900
02525	646*	L2=J7*K2	50000
02526	647*	L3=J7*K3	50100

02527	648.	IF (L9.GT.NDL) GO TO 428	50110
02531	649.	IF (L1.LE.NDE1) GO TO 420	50200
02533	650.	L2=L2+L1-NDE1	50300
02534	651.	L1=NDP1	50400
02535	652.	420 IF (L2.LE.NDE2) GO TO 422	50500
02537	653.	L3=L3+L2-NDE2	50600
02540	654.	L2=NDP2	50700
02541	655.	422 IF (L3.GT.NDE3) GO TO 428	50800
02543	656.	DO 424 J6=J4,J5	50900
02546	657.	K4=IEQ(J6)	51000
02547	658.	IF (J7.INO(J6).GT.NDEQT(K4)) GO TO 428	51100
02551	659.	424 CONTINUE	51200
02553	660.	426 J8=J7	51300
02555	661.	IERR=101	51400
02556	662.	GO TO 899	51500
02557	663.	428 X=8.0	51600
02560	664.	X1=L1-K1	51601
02561	665.	X2=L2-K2	51602
02562	666.	X3=L3-K3	51603
02563	667.	X9=L9-J9	51604
02564	668.	IF (J.EQ.30000) X=10.0	51610
02566	669.	J=INDX(11)	51615
02567	670.	DO 432 M=1,3	51700
02572	671.	SLH(M,J)=SLH(M,J)+X*X9	51800
02573	672.	SE1H(M,J)=SE1H(M,J)+X*X1	51900
02574	673.	SE2H(M,J)=SE2H(M,J)+X*X2	52000
02575	674.	SE3H(M,J)=SE3H(M,J)+X*X3	52100
02576	675.	TCL(M,J)=TCL(M,J)+X*(X9*CL+X1*CE1+X2*CE2+X3*CE3)	52200
02577	676.	DO 430 J6=J4,J5	52300
02602	677.	J7=IEQ(J6)	52400
02603	678.	X6=INO(J6)*J8	52410
02604	679.	EQH(M,J,J7)=EQH(M,J,J7)+X6*X	52500
02605	680.	430 EQTOT(M,J)=EQTOT(M,J)+X*X6*EQC(J7)	52600
02607	681.	432 CONTINUE	52700
02611	682.	NDL=NDL-J8*J9	52800
02612	683.	NSL=NSL+J8*J9	52810
02613	684.	NDE1=NDE1-J8*K1	52900
02614	685.	NSE1=NSE1+J8*K1	52910
02615	686.	NDE2=NDE2-J8*K2	53000
02616	687.	NSE2=NSE2+J8*K2	53010
02617	688.	NDE3=NDE3-J8*K3	53100
02620	689.	NSE3=NSE3+J8*K3	53110
02621	690.	DO 434 J6=J4,J5	53200
02624	691.	J7=IEQ(J6)	53300
02625	692.	ISEQ(J7)=ISEQ(J7)+INO(J6)*J8	53310
02626	693.	434 NDEQT(J7)=NDEQT(J7)-INO(J6)*J8	53400
02630	694.	436 CONTINUE	53500
02632	695.	VPR(11)=0.0	53550
02633	696.	IVTYP(11)=0	53600
02634	697.	GO TO 105	53610
02635	698.	106 I8=1	53700
02636	699.	177 I=I8	53800
02637	700.	COST(1)=0.0	53900
02640	701.	IF (JIND(1).EQ.91) GO TO 140	54000
02642	702.	J8=1	54100
02643	703.	176 J=J8	54200
02644	704.	IEX=1	54300
02645	705.	IF (ICREW(1,J).EQ.01) GO TO 140	54400

02647	706*	141	J1=ICREW(I,J)	54500
02650	707*	172	IF (NDL.LT.ILAB(J1)) GO TO 161	54600
02652	708*		K1=IE01(J1)	54700
02653	709*		K2=IE02(J1)	54800
02654	710*		K3=IE03(J1)	54900
02655	711*		IF (K1.LE.NDE1) GO TO 125	55000
02657	712*		K2=K2+K1-NDE1	55100
02660	713*		K1=NDE1	55200
02661	714*	125	IF (K2.LE.NDE2) GO TO 126	55300
02663	715*		K3=K3+K2-NDE2	55400
02664	716*		K2=NDE2	55500
02665	717*	126	IF (K3.GT.NDE3) GO TO 161	55600
02665	718*		C THIS PATH MEANSS ALL PERSONNEL ARE AVAILABLE *****	55700
02667	719*		SUM=COST(I)+ILAB(J1)*C1+K1*CE1+K2*CE2+K3*CE3	55800
02670	720*		J2=IEQS(J1)	55900
02671	721*		J3=IEQN(J1)	56000
02672	722*		DO 107 J4=J2,J3	56100
02675	723*		J5=IEQ(J4)	56200
02676	724*		IF (NDEQT(J5).LT.INO(J4)) GO TO 161	56300
02700	725*	107	CONTINUE	56400
02702	726*		DO 157 J4=J2,J3	56500
02705	727*		IF (INO(J4).EQ.0) GO TO 157	56510
02707	728*		J5=IEQ(J4)	56600
02710	729*		NDEQT(J5)=NDEQT(J5)+INO(J4)	56700
02711	730*		SUM=SUM+INO(J4)*EQC(J5)	56800
02712	731*	157	CONTINUE	56900
02714	732*		NDL=NDL+ILAB(J1)	57000
02715	733*		NDE1=NDE1+K1	57100
02716	734*		NDE2=NDE2+K2	57200
02717	735*		NDE3=NDE3+K3	57300
02720	736*		COST(I)=SUM+COST(I)	57400
02721	737*		IF (IEX=2) 129,142,142	57500
02724	738*	129	J8=J8+1	57600
02725	739*		IF (J8.LE.6) GO TO 176	57700
02727	740*	140	I8=I8+1	57800
02730	741*		IF (I8.LE.IX10) GO TO 177	57900
02732	742*		GO TO 132	58000
02733	743*	161	IF (IEX=2) 130,146,146	58100
02736	744*	130	DO 131 I=1,IX10	58200
02741	745*		DO 131 J=1,6	58300
02741	746*		C RELEASE ALL CREWS INVENTORY AFTER PERMANENT CHECK IS NEGATIVE	58400
02744	747*	131	ICREW(I,J)=0	58500
02747	748*		GO TO 110	58600
02750	749*	132	DO 133 I=1,IX10	58700
02750	750*		C RANK BY IDELTA	58800
02753	751*		JRANK(I)=1	58900
02754	752*	133	JUNK1(I)=IDELTA(I)	59000
02756	753*		ISIG=0	59010
02757	754*		CALL RANK	59015
02760	755*	138	I2=1	60400
02761	756*	178	I=JRANK(I2)	60500
02762	757*		IEX=2	60550
02763	758*		Y=VPR(I)	60575
02763	759*		C NONSENSE JOB	60600
02764	760*		IF (JIND(I).EQ.9) GO TO 179	60700
02766	761*		IF (JIND(I).EQ.1) GO TO 160	60800
02770	762*		J=1	61000
02771	763*		ISIG=0	61200

02772	764*	148	IF (IVTYP(I).EQ.9999) GO TO 160	61250
02774	765*		IF (Y.LE.0.) GO TO 160	61270
02776	766*		IF (IDELTA(I).GE.0.AND. IDELTA(I).NE.10000) GO TO 160	61300
02776	767*		C JOB IS ON AR AHEAD OF SCHEDULE	61400
03000	768*		IF (ICREW(I,I).EQ.0) GO TO 162	61500
03000	769*		C AT LEAST ONE CREW IS ASSIGNED	61800
03002	770*		IF (ICREW(I,6).EQ.0) GO TO 141	61900
03004	771*	144	PRINT 967 (HOL(I),IDAY,L,I,IVTYP(I),IETC(I),IVDL(I),ICREW(L,K),	62000
03004	772*		IK=1,6))	62100
03021	773*		GO TO 160	62200
03022	774*	142	DO 143 J2=1,6	62300
03025	775*		J3=J2	62400
03026	776*		IF (ICREW(I,J2).EQ.0) GO TO 145	62500
03030	777*	143	CONTINUE	62600
03032	778*	145	ICREW(I,J3)=J1	62700
03033	779*		IF (IVMIN(I).GE.0) IVMIN(I)=-(IDAY+IVMIN(I))	62800
03035	780*		SUM=0.0	62900
03036	781*		DO 1452 J2=1,J1	62950
03041	782*		J4=ICREW(I,J2)	63000
03042	783*		IF (J4.EQ.0) GO TO 1454	63100
03044	784*		IF (J4.LT.0) J4=-J4	63200
03046	785*	1452	SUM=SUM+PROD(J4)	63300
03050	786*	1454	X=SUM*TOJ(I)	63400
03051	787*		J2=(Y/X)+0.5	63500
03052	788*		Y=Y-X	63550
03053	789*		IF (Y.LE.0.0) Y=0.0	63575
03055	790*	280	IETC(I)=IDAY+J2	63600
03056	791*	285	IDELTA(I)=IVDL(I)-IETC(I)	63700
03057	792*		IF (IEX.LE.3) GO TO 148	63800
03061	793*		ICREW(I,J3)=0=ICREW(I,J3)	63900
03062	794*		IEX=4	64000
03063	795*		GO TO 171	64100
03064	796*	146	J=J+1	64200
03065	797*		IF (ICREW(I,J).EQ.0) GO TO 162	64300
03067	798*		J2=J-1	64400
03070	799*		DO 147 J3=1,J2	64500
03073	800*		IF (ICREW(I,J3).EQ.ICREW(I,J)) GO TO 146	64600
03075	801*	147	CONTINUE	64700
03077	802*		GO TO 148	64800
03100	803*	162	IF (IEX.NE.2) GO TO 169	64900
03102	804*		IEX=3	65000
03103	805*		GO TO 180	65100
03104	806*	169	IF (IEX.NE.4) GO TO 165	65200
03106	807*		IEX=5	65300
03107	808*	180	L=INDX(I)	65400
03110	809*		L1=ICRS(L)	65500
03111	810*		L2=ICRN(L)	65600
03112	811*		L=0	65700
03113	812*		DO 163 L4=L1,L2	65800
03116	813*		L=L+1	65850
03117	814*		XJUNK(L)=8.0*HCOST(L4)/(PROD(L4)*TOJ(I))	65900
03120	815*	163	JUNK(L)=L4	66000
03122	816*		DO 164 L4=1,L	66300
03125	817*		DO 164 L5=L4,L	66400
03130	818*		IF (XJUNK(L4).LE.XJUNK(L5)) GO TO 164	66500
03132	819*		X=XJUNK(L4)	66550
03133	820*		XJUNK(L4)=XJUNK(L5)	66575
03134	821*		XJUNK(L5)=X	66600

03135	822*	L3=JUNK1(L4)	66700
03136	823*	JUNK1(L4)=JUNK1(L5)	66900
03137	824*	JUNK1(L5)=L3	67100
03140	825*	164 CONTINUE	67200
03143	826*	L1=0	67300
03144	827*	165 L1=L1+1	67400
03145	828*	IF (L1.GT.L) GO TO 168	67500
03147	829*	DO 170 L5=1,6	67600
03152	830*	IF (ICREW(I,L5).EQ.0) GO TO 275	67700
03154	831*	IF (ICREW(I,L5).EQ.JUNK1(L1)) GO TO 165	67800
03156	832*	IF (ICREW(I,L5).EQ.-JUNK1(L1)) GO TO 165	67900
03160	833*	170 CONTINUE	68000
03162	834*	275 J1=JUNK1(L1)	68100
03163	835*	J2=JUNK1(I)	68150
03164	836*	IF (XJUNK(L1).LT.1.15*XJUNK(I)) GO TO 172	68200
03166	837*	168 JIND(I)=1	68300
03167	838*	IF (IEX.LE.3) GO TO 160	68400
03171	839*	GO TO 171	68500
03172	840*	160 IF (IEX.GT.3) GO TO 171	68600
03174	841*	I2=I2+1	68700
03175	842*	IF (I2.LE.IX10) GO TO 178	68800
03177	843*	179 IFX=4	68900
03200	844*	ISIG=0	69000
03201	845*	I2=1	69100
03202	846*	181 I=JUNK1(I2)	69200
03203	847*	IF (I*VMIN(I).GT.0) GO TO 171	69300
03205	848*	IF ((I*VMIN(I)+I*ETC(I)).LE.0) GO TO 171	69400
03207	849*	IF (JIND(I).NE.0) GO TO 171	69500
03211	850*	J=1	69600
03212	851*	GO TO 148	69700
03213	852*	171 I2=I2+1	69800
03214	853*	IF (I2.LE.IX10) GO TO 181	69900
03216	854*	IF (ISIG.NE.0) GO TO 179	70000
03216	855*	C JOB X INITIALLY**CONVERT TO MAN HOURS	70100
03220	856*	DXL=NDL*8	70200
03221	857*	DXE1=NDE1*8	70300
03222	858*	DXE2=NDE2*8	70400
03223	859*	DXE3=NDE3*8	70500
03224	860*	DO 2004 I=1,IX4	70600
03227	861*	2004 NDEQT(I)=8*NDEQT(I)	70610
03231	862*	ISIG=0	71300
03231	863*	C INDICATES RANKING BY TRAVEL TIME IS NOT YET DONE	71400
03232	864*	I2=1	71500
03232	865*	C DO LOOP OVER ALL JOBS TO SPOT EMERGENCIES	71600
03233	866*	3006 DPR(I2)=0	71700
03234	867*	Y=ILAB(I)	71800
03235	868*	X1=IE01(I)	71900
03236	869*	X2=IE02(I)	72000
03237	870*	X3=IE03(I)	72100
03240	871*	I=I2	72200
03241	872*	J=IVTYP(I)	72300
03242	873*	IF (JIND(I).EQ.9) GO TO 222	72600
03244	874*	IF (J.NE.1000) GO TO 222	73000
03246	875*	J=INDX(I)	73350
03247	876*	TIME=VPR(I)+SUT(J)	73400
03250	877*	TIMET=TIME+2*TTJ(I)	73450
03251	878*	IF (IDTE(I).GT.IDAY) GO TO 222	73500
03253	879*	K1=IEQS(I)	73970

03254	880*	K2=IEQN(1)	73980
03255	881*	DO 2006 K3=K1,K2	73990
03260	882*	K4=IEQ(K3)	74000
03261	883*	IF (NDEQT(K4),LT,(INO(K3)*TIME) GO TO 203	74010
03263	884*	2006 CONTINUE	74020
03265	885*	IF (DXL,LT,Y*TIME) GO TO 203	74100
03267	886*	IF (X1*TIME,LE,DXE1) GO TO 200	74200
03271	887*	X2=X2+X1-DXE1	74300
03272	888*	X1=DXE1	74400
03273	889*	200 IF (X2*TIME,LE,DXE2) GO TO 201	74500
03275	890*	X3=X3+X2-DXE2	74600
03276	891*	X2=DXE2	74700
03277	892*	201 IF (X3*TIME,GT,DXE3) GO TO 203	74800
03301	893*	202 DO 2010 M=1,3	74840
03304	894*	WUA(M,1)=WUA(M,1)+TIME	74850
03305	895*	SLH(M,1)=SLH(M,1)+TIME*Y	74860
03306	896*	SE1H(M,1)=SE1H(M,1)+TIME*X1	74870
03307	897*	SE2H(M,1)=SE2H(M,1)+TIME*X2	74880
03310	898*	SE3H(M,1)=SE3H(M,1)+TIME*X3	74900
03311	899*	TCL(M,1)=TIME*(Y*CL+X1*CE1+X2*CE2+X3*CE3)+TCL(M,1)	74910
03312	900*	VPR(1)=0.0	74915
03313	901*	JINX=1	74916
03314	902*	IVTYP(1)=0	74917
03315	903*	DO 2008 N=K1,K2	74920
03320	904*	IF (INO(N),EQ,0) GO TO 2008	74930
03322	905*	K3=IEQ(N)	74940
03323	906*	EQH(M,1,K3)=EQH(M,1,K3)+INO(N)*TIME	74950
03324	907*	EQTOT(M,1)=EQTOT(M,1)+INO(N)*TIME*EQC(K3)	74960
03325	908*	NDEQT(K3)=NDEQT(K3)+INO(N)*TIME	74970
03326	909*	2008 CONTINUE	74980
03330	910*	2010 CONTINUE	74990
03332	911*	DXL=DXL-Y*TIME	75400
03333	912*	DXE1=DXE1-X1*TIME	75500
03334	913*	DXE2=DXE2-X2*TIME	75600
03335	914*	DXE3=DXE3-X3*TIME	75700
03336	915*	GO TO 222	76100
03337	916*	203 IF (ISIG,NE,0) GO TO 206	76200
03337	917*	C CHECK TO SEE IF RANKING IS REQUIRED	76300
03341	918*	ISIG=1	76400
03342	919*	DO 204 J1=1,IX10	76500
03345	920*	JUNK1(J1)=J1	76600
03346	921*	204 XJUNK(J1)=YTJ(J1)	76700
03346	922*	C ORIGINAL INVENTORY INDEX AND TRAVEL TIME	76800
03350	923*	DO 205 J1=1,IX10	76900
03350	924*	C RANK ON TRAVEL TIME	77000
03353	925*	DO 205 J2=J1,IX10	77100
03356	926*	J4=JUNK1(J1)	77050
03357	927*	J5=JUNK1(J2)	77075
03360	928*	IF (XJUNK(J4),LE,XJUNK(J5)) GO TO 205	77200
03362	929*	J3=JUNK1(J2)	77300
03363	930*	JUNK1(J2)=JUNK(J1)	77500
03364	931*	JUNK1(J1)=J3	77700
03365	932*	205 CONTINUE	77900
03370	933*	206 DO 218 J1=1,IX10	78600
03370	934*	C CHECK FOR CREW	78700
03373	935*	J2=JUNK1(J1)	78800
03374	936*	IF (JIND(J2),EQ,9) GO TO 218	78900
03376	937*	DO 210 J3=1,6	79000

03376	938*	C AUXILIARY CREW CHECK	79100
03401	939*	J4=7-J3	79200
03402	940*	IF (ICREW(J2,J4)) 207,210,218	79300
03405	941*	207 IF (J4.EQ.6) GO TO 221	79400
03407	942*	DO 208 J5=J4,5	79500
03412	943*	IF (ICREW(J2,J4).EQ.ICREW(J2,J5+1)) GO TO 210	79600
03414	944*	208 CONTINUE	79700
03416	945*	221 J5=ICREW(J2,J4)	79800
03416	946*	C CREW HAS NOT BEEN CHECKED	79900
03417	947*	IF (TX.GE.TIME) GO TO 211	80000
03421	948*	J6=IEQS(J5)	80100
03422	949*	J7=IEQN(J5)	80200
03423	950*	DO 209 J8=J6,J7	80300
03424	951*	J9=J8	80400
03427	952*	IF (IEQ(J8).EQ.2) GO TO 211	80500
03431	953*	209 CONTINUE	80600
03433	954*	GO TO 210	80700
03434	955*	211 IF ((8*ILAB(J5)+DXL).LT.(2.0*TIME)) GO TO 210	80800
03436	956*	IF ((8*(IEO1(J5)+IEO2(J5)+IEO3(J5))+DXE1+DXE2+DXE3).GE.TIME) GO T	80900
03436	957*	10 219	81000
03440	958*	IF ((IEO1(J5)+IEO2(J5)+IEO3(J5)).LT.1) GO TO 210	81100
03442	959*	210 CONTINUE	81200
03444	960*	218 CONTINUE	81300
03446	961*	DO 318 J1=1,IX10	81400
03451	962*	J2=JUNK1(J1)	81500
03452	963*	DO 290 K1=1,6	81600
03455	964*	J4=K1	81700
03456	965*	214 IF (ICREW(J2,J4).LE.0) GO TO 318	81800
03460	966*	IF (J4.EQ.1) GO TO 220	81900
03462	967*	J6=J4-1	82000
03463	968*	J5=1	82100
03464	969*	215 IF (ICREW(J2,J5).EQ.ICREW(J2,J4)) GO TO 318	82200
03466	970*	J5=J5+1	82300
03467	971*	IF (J5.GT.J6) GO TO 220	82400
03471	972*	GO TO 215	82500
03472	973*	220 J5=ICREW(J2,J4)	82600
03473	974*	J6=IEQS(J5)	82700
03474	975*	J7=IEQN(J5)	82800
03475	976*	IF (TX.GE.TIME) GO TO 217	82900
03477	977*	DO 216 J8=J6,J7	83000
03502	978*	J9=J8	83100
03503	979*	IF (IEQ(J9).EQ.1) GO TO 217	83200
03505	980*	216 CONTINUE	83300
03507	981*	GO TO 318	83400
03510	982*	217 IF ((8*ILAB(J5)+DXL).LT.(2.0*TIME)) GO TO 290	83500
03512	983*	IF ((8*(IEO1(J5)+IEO2(J5)+IEO3(J5))+DXE1+DXE2+DXE3).GE.TIME) GO T	83600
03512	984*	10 219	83700
03514	985*	290 CONTINUE	83800
03516	986*	318 CONTINUE	83900
03520	987*	IPRINT=110	84000
03521	988*	PRINT 1000, IPRINT	84100
03524	989*	222 I2=I2+1	84300
03525	990*	IF (I2.LE.IX10) GO TO 3006	84350
03527	991*	GO TO 223	84375
03530	992*	219 X1=TOJ(I)-TIME	91400
03531	993*	DPR(I)=DPR(I)+X1*PROD(J5)	91500
03532	994*	COST(I)=COST(I)-X1*MCOST(J5)	91600
03533	995*	IF (J4.EQ.6) GO TO 213	91700

03535	996.	DO 212 J5=J4,5	91800
03540	997.	212 ICREW(J2,J5)=ICREW(J2,J5+1)	91900
03542	998.	213 ICREW(J2,6)=0	92000
03543	999.	TX=TX+TIME*INO(J9)	92100
03544	1000.	DXL=DXL+TIME*ILAB(J5)	92200
03545	1001.	DXE1=DXE1+TIME*IEO1(J5)	92300
03546	1002.	DXE2=DXE2+TIME*IEO2(J5)	92400
03547	1003.	DXE3=DXE3+TIME*IEO3(J5)	92500
03550	1004.	GO TO 202	92600
03551	1005.	223 ISIG=0	84400
03552	1006.	DO 763 I=1,IX10	84500
03552	1007.	C DO OVER ALL JOBS IN INVENTORY	84600
03555	1008.	IF (JIND(I),EQ,9) GO TO 763	84700
03557	1009.	J=INDX(I)	84800
03557	1010.	C TYPE INDEX OF ITH JOB	84900
03560	1011.	DO 762 K=1,6	85000
03560	1012.	C BASIC CREW LIST OF ITH JOB	85100
03563	1013.	L=ICREW(I,K)	85200
03564	1014.	IF (L,EQ,0) GO TO 763	85300
03566	1015.	IF (L,LT,0) L=L	85400
03570	1016.	Z=TOJ(I)	85450
03571	1017.	X= Z*PROD(L)	85500
03571	1018.	C DAILY PRODUCTION	85600
03572	1019.	VPR(I)=VPR(I)+X	85602
03573	1020.	TIME=0,0	85605
03574	1021.	IF (VPR(I)) 1118,1120,1130	85610
03577	1022.	1118 TIME=-VPR(I)/PROD(L)	85620
03600	1023.	VPR(I)=0,0	85630
03601	1024.	CPR(I)=0,0	85635
03602	1025.	JINX=1	85640
03603	1026.	Z=TOJ(I)+TIME	85700
03604	1027.	X= Z*PROD(L)	85710
03605	1028.	GO TO 1122	85720
03606	1029.	1120 CPR(I)=0,0	85735
03607	1030.	GO TO 1122	85740
03610	1031.	1130 CPR(I)=CPR(I)+X	85750
03611	1032.	1122 DO 761 M=1,3	85800
03614	1033.	WUA(M,J)=WUA(M,J)+X	85900
03615	1034.	SLH(M,J)=SLH(M,J)+ILAB(L)*Z	86000
03616	1035.	SE1H(M,J)=SE1H(M,J)+IEO1(L)*Z	86100
03617	1036.	SE2H(M,J)=SE2H(M,J)+IEO2(L)*Z	86200
03620	1037.	SE3H(M,J)=SE3H(M,J)+IEO3(L)*Z	86300
03621	1038.	TCL(M,J)=TCL(M,J)+ Z*(ILAB(L)*CL+IEO1(L)*CE1+IEO2(L)*CE2+IEO3(L)*CE3)	86400
03621	1039.		86500
03622	1040.	N1=IEQS(L)	86600
03623	1041.	N2=IEQN(L)	86700
03624	1042.	DO 760 N=N1,N2	86800
03627	1043.	N3=IEQN(N)	86900
03630	1044.	EQH(M,J,N3)=EQH(M,J,N3)+INO(N)*Z	87000
03631	1045.	760 EQTOT(M,J)=EQTOT(M,J)+INO(N)* Z*EQC(N3)	87100
03633	1046.	761 CONTINUE	87200
03635	1047.	1124 IF (TIME,LE,0,0) GO TO 762	87205
03637	1048.	DO 650 N1=1,IX10	A 87205
03642	1049.	IF (J,NE,INDX(N1)) GO TO 650	B 87205
03644	1050.	IF (CPR(N1),LE,0,0,OR,JIND(N1),EQ,9,OR,ETC(N1),EQ,1DAY) GO TO 650	C 87205
03646	1051.	IF (TIME,LE,4,0*TTJ(N1)) GO TO 650	CC 87205
03650	1052.	Z=TIME+2*TTJ(N1)	D 87205
03651	1053.	TIME=Z	DA 87205

03652	1054*	X=Z*PROD(L)	DD87205
03653	1055*	VPR(N1)=VPR(N1)*X	E 87205
03654	1056*	Z1=0.0	F 87205
03655	1057*	IF (VPR(N1)) 651,652,653	G 87205
03660	1058*	651 Z1=VPR(N1)/PROD(L)	H 87205
03661	1059*	VPR(N1)=0.0	I 87205
03662	1060*	CPR(N1)=0.0	J 87205
03663	1061*	JINX=N1	JJ87205
03664	1062*	Z=TIME-Z1	K87205
03665	1063*	TIME=TIME-Z	KK87205
03666	1064*	X=Z*PROD(L)	L87205
03667	1065*	GO TO 1122	M 87205
03670	1066*	652 CPR(N1)=0.0	N 87205
03671	1067*	JINX=N1	NN87205
03672	1068*	TIME=0.0	NNN87205
03673	1069*	GO TO 1122	O 87205
03674	1070*	653 CPR(N1)=CPR(N1)*X	P 87205
03675	1071*	TIME=0.0	PP 87205
03676	1072*	GO TO 1122	Q 87205
03677	1073*	650 CONTINUE	R 87205
03701	1074*	DXL=DXL+TIME*ILAB(L)	87210
03702	1075*	DXE1=DXE1+TIME*IE01(L)	87215
03703	1076*	DXE2=DXE2+TIME*IE02(L)	87220
03704	1077*	DXE3=DXE3+TIME*IE03(L)	87225
03705	1078*	ICREW(I,K)=0	87230
03706	1079*	N1=IEQ5(L)	87240
03707	1080*	N2=IEQN(L)	87250
03710	1081*	DO 1126 N=N1,N2	87260
03713	1082*	N3=IEQ(N)	87270
03714	1083*	NDEQT(N3)=NDEQT(N3)+TIME*INO(N)	87280
03715	1084*	1126 CONTINUE	87290
03717	1085*	762 CONTINUE	87300
03721	1086*	763 CONTINUE	87305
03723	1087*	JSIG=1	A 87305
03724	1088*	7611 IF (JSIG,EQ,0) GO TO 2003	
03726	1089*	JSIG=0	87305000
03727	1090*	DO 7610 I=1,IX10	87305010
03732	1091*	IF (CPR(I),LE,0.0,OR,JIND(I),EQ,9) GO TO 7610	87305020
03734	1092*	J=ICREW(I,1)	87305030
03735	1093*	IF (J,EQ,0) GO TO 7610	87305040
03737	1094*	Z=4*TTJ(I)	87305050
03737	1095*	C MINIMUM TIME ACCEPTABLE	87305060
03740	1096*	L=ILAB(J)	87305070
03741	1097*	X1=IE01(J)	87305080
03742	1098*	X2=IE02(J)	87305090
03743	1099*	X3=IE03(J)	87305100
03744	1100*	X=DXL/L	87305110
03745	1101*	IF (X,LT,Z) GO TO 7610	87305120
03747	1102*	IF (X,GT,8.0) X=8.0	87305130
03751	1103*	Y1=DXE1	87305140
03752	1104*	Y2=DXE2	87305150
03753	1105*	Y3=DXE3	87305160
03754	1106*	7601 IF (X1*X,LT,Y1) GO TO 7600	87305170
03756	1107*	X2=X2+X1=Y1	87305180
03757	1108*	X1=Y1	87305190
03760	1109*	7600 IF (X2*X,LT,Y2) GO TO 7602	87305200
03762	1110*	X3=X3+X2=Y2	87305210
03763	1111*	X2=Y2	87305220

03764	1112	7602	IF (X3>X.LT.Y3) GO TO 7604	87305230
03766	1113		Z1=Y3/X3	87305240
03767	1114	7604	IF (Z1.LT.Z1 GO TO 7610	87305250
03771	1115		X=Z1	87305260
03772	1116		K1=IEQS(J)	87305280
03773	1117		K2=IEQN(J)	87305290
03774	1118		DO 7620 K3=K1,K2	87305300
03777	1119		K4=INDX(K3)	87305310
04000	1120		IF(NDEQT(K4).GE.INO(K3)*X) GO TO 7620	87305320
04002	1121		X=NDEQT(K4)/INO(K3)	87305330
04003	1122		IF (X.LT.Z) GO TO 7610	87305340
04005	1123	7620	CONTINUE	87305350
04007	1124		JSIG=1	87305360
04010	1125		K=INDX(1)	87305370
04011	1126		XX=X+2*TTJ(1)	87305380
04012	1127		Z=PROD(J1*XX	87305390
04013	1128		IF (Z.LT.VPR(1)) GO TO 7622	87305400
04015	1129		XX=VPR(1)/PROD(J)	87305410
04016	1130		X=XX+2*TTJ(1)	87305420
04017	1131		Z=VPR(1)	87305430
04020	1132	7622	DO 7624 M=1,3	87305440
04023	1133		WUA(M,K1=WUA(M,K)+Z	87305450
04024	1134		SLH(M,K)=SLH(M,K)+L*XX	87305460
04025	1135		SE1H(M,K)=SE1H(M,K1+X1*XX	87305470
04026	1136		SE2H(M,K)=SE2H(M,K)+X2*XX	87305480
04027	1137		SE3H(M,K)=SE3H(M,K1+X3*XX	87305490
04030	1138		TCL(M,K1=TCL(M,K)+XX*(L*CL+X1*CE1+X2*CE2+X3*CE3)	87305500
04031	1139		DO 7624 N=K1,K2	87305510
04034	1140		IF (INO(N1.EQ.0) GO TO 7624	87305520
04036	1141		K3=IEQ(N)	87305530
04037	1142		EQH(M,K,K3)=EQH(M,K,K31+INO(N1)*XX	87305540
04040	1143		EQTOT(M,K)=EQTOT(M,K)+INO(N)*XX*EQC(K31	87305550
04041	1144		NDEQT(K3)=NDEQT(K3)+X*INO(N1	87305560
04042	1145	7624	CONTINUE	87305570
04045	1146		VPR(1)=VPR(1)-Z-.00001	87305580
04046	1147		IF (VPR(1).GT.0.01 GO TO 7626	87305590
04050	1148		CPR(1)=0.0	87305600
04051	1149		IVTYP(1)=0	87305610
04052	1150		JINX=1	87305615
04053	1151		VPR(1)=0.0	87305620
04054	1152	7626	DXL=DXL-L*X	87305630
04055	1153		DXE1=DXE1-X1*X	87305640
04056	1154		DXE2=DXE2-X2*X	87305650
04057	1155		DXE3=DXE3-X3*X	87305660
04060	1156	7610	CONTINUE	87305670
04062	1157	2003	IF (JSIG.NE.0) GO TO 7611	87305680
04064	1158		DO 20030 LL=1,IX10	A=87306
04067	1159		IF (IDTE(LL).GT.IDAY) GO TO 20030	A87306
04071	1160		J=INDX(LL)	87107
04072	1161		WUC(1,J)=WUC(1,J)+VPR(LL)	87306
04073	1162	20030	CONTINUE	87309
04075	1163		IF (ISDAY.GT.5.OR.IDAY.EQ.WHOL(IHOL)) GO TO 770	A87309
04077	1164		DO 2002 M=1,3	87310
04102	1165		XJL(M)=XJL(M)+DXL	87320
04103	1166		XJE1(M)=XJE1(M)+DXE1	87330
04104	1167		XJE2(M)=XJE2(M)+DXE2	87340
04105	1168	2002	XJE3(M)=XJE3(M)+DXE3	87350
04107	1169	770	M=1	87800

04110	1170*	IF (NHOL(IHOL),EQ,1DAY) IHOL=IHOL+1	87805
04112	1171*	IF (ISDAY,LT,6,AND,KHOL,NE,1) GO TO 771	87810
04112	1172*	C OFF DAY	87820
04114	1173*	IF (TCL(1,5)+TCL(1,3)+TCL(1,4),LE,0,0) GO TO 772	87830
04116	1174*	771 M=1	87840
04117	1175*	DO 1110 K=2,IX5	87860
04122	1176*	1110 WUP(1,K)=WUP(1,K)-WUA(1,K)	87880
04124	1177*	IF (10,T(17),EQ,0) GO TO 772	87890
04126	1178*	PRINT 970 (IWEEK,DWEEK(ISDAY),IDAY,IW(IDAY+3))	88000
04134	1179*	773 IF (IPLAN,EQ,0) GO TO 1112	88060
04136	1180*	DO 1106 K=1,IX5	88070
04141	1181*	1106 WUP(1,K)=WUP(2,K)	88080
04143	1182*	1112 PRINT 930 (INVSUM)	88100
04146	1183*	PRINT 971	88130
04150	1184*	PRINT 972	88200
04152	1185*	ISIG=5	88300
04153	1186*	X1=0,0	88410
04154	1187*	X2=0,0	88420
04155	1188*	DO 777 I=1,IX5	88500
04160	1189*	X=TCL(M,I)+EQTOT(M,I)	88600
04161	1190*	X1=X1+X	88610
04162	1191*	Z=WUC(M,I)+X	88620
04163	1192*	IF (Z,LE,0,0) GO TO 777	88700
04165	1193*	Y=SLH(M,I)+SE1H(M,I)+SE2H(M,I)+SE3H(M,I)	88800
04166	1194*	X2=X2+Y	88810
04167	1195*	IF (ISIG,NE,5) GO TO 775	88900
04171	1196*	PRINT 975	89000
04173	1197*	ISIG=0	89100
04174	1198*	775 PRINT 973 (I,ITYP(I),HT1(I),HT2(I),SLH(M,I),SE1H(M,I),SE2H(M,I),SE	89200
04174	1199*	13H(M,I),Y,TCL(M,I),X,WUP(M,I),WUA(M,I),WUC(M,I))	89300
04214	1200*	ISIG=ISIG+1	89400
04215	1201*	777 CONTINUE	89500
04217	1202*	X3=0,0	89510
04220	1203*	X4=0,0	89512
04221	1204*	X5=0,0	89514
04222	1205*	X6=0,0	89516
04223	1206*	X7=0,0	89518
04224	1207*	DO 1044 I=1,IX5	89520
04227	1208*	X3=X3+SLH(M,I)	89525
04230	1209*	X4=X4+SE1H(M,I)	89530
04231	1210*	X5=X5+SE2H(M,I)	89535
04232	1211*	X6=X6+SE3H(M,I)	89540
04233	1212*	X7=X7+TCL(M,I)	89545
04234	1213*	1044 CONTINUE	89550
04236	1214*	K1=X1+0.5	89555
04237	1215*	K2=X2+0.5	89560
04240	1216*	K3=X3+0.5	89565
04241	1217*	K4=X4+0.5	89570
04242	1218*	K5=X5+0.5	89575
04243	1219*	K6=X6+0.5	89580
04244	1220*	K7=X7+0.5	89585
04245	1221*	PRINT 987 (K3,K4,K5,K6,K2,K7,K1)	89590
04256	1222*	X=XJL(M)+XJE1(M)+XJE2(M)+XJE3(M)	89600
04257	1223*	Y=CL(XJL(M)+CE1*XJE1(M)+CE2*XJE2(M)+CE3*XJE3(M)	89610
04260	1224*	PRINT 988 (XJL(M),XJE1(M),XJE2(M),XJE3(M),X,Y)	89620
04270	1225*	IF (M,EQ,1) PRINT 934 (PAYROL)	89625
04274	1226*	PRINT 950	89630
04276	1227*	PRINT 979	


```

04300 1228*      PRINT 980 (IEQ1(I),I=1,IX4)
04300 1229*      C COLUMN HEADINGS FOR EQUIPMENT TYPES
04306 1230*      ISIG=5
04307 1231*      DO 782 I=1,IX5
04307 1232*      C ROWS OR JOB TYPES
04312 1233*      IF (EQTOT(M,I).LE.0.0) GO TO 782
04314 1234*      IF (ISIG.LT.5) GO TO 780
04316 1235*      ISIG=0
04317 1236*      PRINT 975
04321 1237*      780 DO 7801 K=1,IX4
04324 1238*      7801 JUNK1(K)=EQH(M,I,K)+0.5
04326 1239*      PRINT 982 (ITYP(I),EQTOT(M,I),(JUNK1(K),K=1,IX4))
04336 1240*      ISIG=ISIG+1
04337 1241*      782 CONTINUE
04341 1242*      DO 785 K=1,IX4
04344 1243*      SUM=0.0
04345 1244*      SUM1=0.0
04346 1245*      DO 783 I=1,IX5
04351 1246*      SUM1=SUM1+EQTOT(M,I)
04352 1247*      783 SUM=SUM+EQH(M,I,K)
04354 1248*      JUNK1(K)=SUM+.5
04355 1249*      JUNK2(I)=SUM1+.5
04356 1250*      785 CONTINUE
04360 1251*      PRINT 983 (JUNK2(I),(JUNK1(K),K=1,IX4))
04367 1252*      772 I2=1
04370 1253*      I1=1
04371 1254*      IF (IPLAN.EQ.1) GO TO 1028
04373 1255*      IF (M.NE.1) GO TO 774
04375 1256*      IF (ISDAY.EQ.7) GO TO 776
04377 1257*      IF (IDAY.NE.1YEAR) GO TO 700 @ NOTE=,SHORT YEAR
04401 1258*      776 K1=1
04402 1259*      K2=IDAY
04403 1260*      IF (IDAY.GT.7) K1=IDAY-ISDAY+1
04405 1261*      DO 1641 I=1,IX5
04410 1262*      1641 WUC(2,I)=WUC(1,I)
04412 1263*      M=2
04413 1264*      IF (IOUT(18).EQ.0) GO TO 7730
04415 1265*      PRINT 984 (IWEK,NMULT,(IW(K+3),K=K1,K2))
04425 1266*      7730 IWEK=IWEK+1
04426 1267*      GO TO 773
04427 1268*      774 IF (M.EQ.3) STOP
04431 1269*      IF (IDAY.LT.1YEAR) GO TO 766 @ NOTE=,SHORT YEAR
04433 1270*      M=3
04434 1271*      PRINT 985
04436 1272*      GO TO 773
04437 1273*      766 I1=2
04440 1274*      GO TO 700
04441 1275*      9200 PRINT 920
04443 1276*      STOP
04444 1277*      9210 PRINT 921
04446 1278*      STOP
04447 1279*      9220 PRINT 922
04451 1280*      STOP
04452 1281*      9230 PRINT 923
04454 1282*      STOP
04455 1283*      9240 PRINT 924
04457 1284*      STOP
04460 1285*      9370 PRINT 937 (JUNK(J))

```

90030
90040
90045
90050
90060
90070
90072
90074
90078
90082
90084
90090
90098
90099
A90099
90100
90110
90120
90130
90140
90150
90160
90170
92700
92710
92720
92730
92740
92750
92760
92770
92780
92790
92800

04463	1286*	STOP	92810
04464	1287*	1028 I2=1	93500
04465	1288*	I1=2	93600
04466	1289*	GO TO 700	93600
04467	1290*	899 PRINT 902 (IERR)	93800
04472	1291*	STOP	93900
04473	1292*	900 FORMAT (12A6)	94000
04474	1293*	901 FORMAT (40I2)	94100
04475	1294*	902 FORMAT (14,4(1X,09),214,F4.1,2A6)	94200
04476	1295*	903 FORMAT (2(14,F5.1,311,14I2))	94300
04477	1296*	904 FORMAT (13,1X,13,F3.1,10(1X,13,F3.1))	94400
04500	1297*	905 FORMAT (12,25I3)	94500
04501	1298*	906 FORMAT (2A6,13,1X,13,1X,F5.2)	94600
04502	1299*	907 FORMAT (14,11,1X,F6.1,1X,13,2(1X,12),5(1X,13),1X,12)	94700
04503	1300*	908 FORMAT (214)	94800
04504	1301*	909 FORMAT (2I2,7A6)	94810
04505	1302*	920 FORMAT ('ONUMBER OF JOB TYPES EXCEEDS MAXIMUM')	94820
04506	1303*	921 FORMAT ('ONUMBER OF BASIC CREWS EXCEEDS MAXIMUM')	94830
04507	1304*	922 FORMAT ('ONUMBER OF BASIC CREW EQUIPMENTS EXCEEDS MAXIMUM')	94840
04510	1305*	923 FORMAT ('ONUMBER OF HIGHWAYS IN ZONE LIST EXCEEDS MAXIMUM')	94850
04511	1306*	924 FORMAT ('ONUMBER OF ZONES IN ZONE LIST EXCEEDS MAXIMUM')	94860
04512	1307*	925 FORMAT ('INVENTORY BACKLOGGED',14,' DAYS ON DAY',14)	94870
04513	1308*	926 FORMAT ('WEATHER JOB SKIPPED DAY',14,' WEATHER',12,' INVENTORY I	94880
04513	1309*	15-FULL')	94881
04514	1310*	927 FORMAT ('O	94890
04515	1311*	928 FORMAT (1H 2A6,16,F7.2)	94900
04516	1312*	929 FORMAT ('ONUMBER OF EQUIPMENT TYPES IN INVENTORY EXCEEDS MAXIMUM')	94910
04517	1313*	930 FORMAT (1H+,110X,14,' JOBS')	94920
04520	1314*	931 FORMAT ('1MAXIMA 1X4=',14,' 1X5=',14,' 1X5C=',14,' 1X5E=	94930
04520	1315*	1',14,' 1X6=',14,' 1X6Z=',14,' 1X8=',14,' 1X9=',14,' 1X10	94931
04520	1316*	2=',14)	94932
04521	1317*	932 FORMAT ('OHOLIDAYS',12I4)	94940
04522	1318*	933 FORMAT ('1',10X,'JOB TYPES AND BASIC CREW DATA')	94950
04523	1319*	934 FORMAT ('+',85X,'PAYROLL' F12.2)	94955
04524	1320*	935 FORMAT (' CALCULATED',14,7X,14,2(8X,14),7X,14,8X,14,2(7X,14))	94960
04525	1321*	936 FORMAT (' READ JOBS OUT OF SEQUENCE LAST IN ON DAY',13,' CURREN	94965
04525	1322*	IT JOB IS DATED '13)	94966
04526	1323*	937 FORMAT ('EQUIPMENT TYPE',13,' NOT IN INVENTORY')	94970
04527	1324*	950 FORMAT (1H0A6,40I2)	95000
04530	1325*	951 FORMAT (1H0,2A6,15,13,4(2X,09),1X,214,F4.1,14)	95100
04531	1326*	952 FORMAT (78H0 JOB CREW PROD E01 E02 E03 LAB HR COST EQUIPMEN	95200
04531	1327*	IT INDEX AND TYPE=NUMBER)	95300
04532	1328*	953 FORMAT (17,16,F7.1,1X,414,F7.2,15,1H=13,3X,6(2X,21311	95400
04533	1329*	954 FORMAT (1H0A6,14,15,214,2X,1915)	95500
04534	1330*	955 FORMAT (27X,20F5.1)	95600
04535	1331*	956 FORMAT (1H1,42X,16HWEATHER CALENDAR)	95700
04536	1332*	957 FORMAT (1H0,7X,31I31	95800
04537	1333*	958 FORMAT (1H ,A6,1X,31I3)	95900
04540	1334*	959 FORMAT (' OWEATHER=DAY DUPLICATE',3I4)	96000
04541	1335*	960 FORMAT (1H040X,19HTRAVEL TIME TO ZONE)	96100
04542	1336*	961 FORMAT (1H 13,F7.21	96200
04543	1337*	962 FORMAT (9X,20F6.2)	96300
04544	1338*	963 FORMAT (' PERSONNEL INVENTORY NUMBER AVAILABLE AND HOURLY RATE')	96400
04545	1339*	964 FORMAT (3X,13,15,13,2F7.2)	96500
04546	1340*	965 FORMAT (34H LAST THREE DAYS OF PRECEDING YEAR 58X,3I31	96600
04547	1341*	966 FORMAT (1H 14,15,12,F7.2,12I4)	96700
04550	1342*	967 FORMAT (1H0A6,15I5)	96800
04551	1343*	968 FORMAT (30HMAXIMUM JOB INVENTORY EXCEEDED)	96900

04552	1344	1000 FORMAT(' COMPUTER GOT TO ', I3)	97000
04553	1345	969 FORMAT(' ERROR, I RPER(=I PER) IS ZERO, COMPUTER WILL GO IN AN ENDLESS	97100
04553	1346	1 LOOP')	97200
04554	1347	970 FORMAT (1H1,3IX,19HDAILY REPORT WEEK13,2X,4HDAY A6,1X,13,3X,7HWE	97300
04554	1348	1ATHER12)	97301
04555	1349	971 FORMAT (16H0INDEX TYPE NAME 9X,89H.....LABOR HOURS.....	97500
04555	1350	1..... LABOR TOTAL W,U. W,U. W,U.)	97600
04556	1351	972 FORMAT (25X,95HLABORERS EQ OP 1 EQ OP 2 EQ OP 3 TOTAL COS	97700
04556	1352	IT COST PLANNED DONE CARRIED)	97800
04557	1353	973 FORMAT (14,16,1X,2A6,5F9.1,F10.2,F9.2,3F9.1)	97900
04560	1354	974 FORMAT (1H0,12X,2016)	98000
04561	1355	975 FORMAT (1H 2A6,20F6.1)	98100
04562	1356	976 FORMAT (1H 2A6,14,215,F7.2)	98200
04563	1357	979 FORMAT (1H0,48X,18HEQUIPMENT SUMMARY)	98220
04564	1358	980 FORMAT (14H TYPE COSTS,2315)	98230
04565	1359	982 FORMAT (15,F9.2,2315)	98235
04566	1360	983 FORMAT (7H0TOTAL ,17,2315)	98240
04567	1361	984 FORMAT (1H1,3IX,19HWEKLY REPORT WEEK,12,13,1X,18HWORK DAYS WEAT	98245
04567	1362	1HER,712)	98246
04570	1363	985 FORMAT (1H1,51X,13HYEARLY REPORT)	98250
04571	1364	986 FORMAT (1H1,3IX,18HWEEKLY PLAN WEEK 13,16,10H WORK DAYS)	98255
04572	1365	987 FORMAT(1H0,10X,6HTOTALS,5X,519,110,19)	98260
04573	1366	988 FORMAT (1H0,10X,12HJOB X LABOR ,5F9.1,F10.2)	98270
04574	1367	990 FORMAT (1H ,213,15F6.1)
04575	1368	991 FORMAT (7X,15F6.1)
04576	1369	992 FORMAT (10(2X,13,F6.2))	98280
04577	1370	993 FORMAT ('THE FOLLOWING JOB IS IN AN INACCESSABLE ZONE. IT HAS BEEN	98290
04577	1371	1SKIPPED')	98291
04600	1372	994 FORMAT (1H119X,'RECURRING JOB PROTOTYPES')	98300
04601	1373	996 FORMAT(1H112X,'HIGHWAYS AND CORRESPONDING ZONES')	98400
04602	1374	996 FORMAT ('ORECURRING JOB TYPE IS UNDEFINED')	98500
04603	1375	997 FORMAT (1H 10F10.2)	93200
04604	1376	998 FORMAT (1H 2F10.2,1317)	93100
04605	1377	999 FORMAT (1H01517)	93000
04606	1378	2022 1PLAN=1	99995
04607	1379	DO 2021 I=1,IX5	99996
04612	1380	2021 XJUNK1(I)=0.0	99997
04614	1381	DO 2000 I=1,IX10	100000
04614	1382	C ACCEPTABLE JOBS WEEKLY	100100
04617	1383	JRANK(I)=1	100200
04620	1384	JUNK1(I)=1VDL(I)	100300
04621	1385	JIND(I)=0	100400
04622	1386	N=1VTYP(I)	100500
04623	1387	IF (N,NE,1000,AND,N,NE,9999,AND,N,NE,0) GO TO 1024	100600
04625	1388	JIND(I)=9	100700
04626	1389	JUNK1(I)=10000	100705
04627	1390	1024 DO 2000 J=1,6	100710
04632	1391	ICREW(I,J)=0	100720
04633	1392	2000 CONTINUE	100800
04636	1393	CALL RANK	
04636	1394	C GO TO RANKING SUBROUTINE	101100
04637	1395	1001 DO 1015 I=1,IX10	101200
04642	1396	J2=JRANK(I)	101225
04643	1397	IF(JIND(J2),EQ,9) GO TO 1015	101250
04645	1398	J=1NDX(J2)	101300
04646	1399	XJUNK1(J)=XJUNK1(J)+VPR(J2)	101350
04647	1400	K5=1CRS(J)	101400
04650	1401	K6=1CRN(J)	101500

04651	1402*	J1=0	101600
04652	1403*	DO 1002 K=K5,K6	101700
04655	1404*	J1=J1+1	101750
04656	1405*	XJUNK(J1)=8.0*HCOST(K1)/(TOJ(J2)*PROD(K1))	101800
04657	1406*	1002 JUNK1(J1)=K	101900
04661	1407*	DO 1003 K5=1,J1	102200
04664	1408*	DO 1003 K6=K5,J1	102300
04664	1409*	C_RANK CREWS ON UNIT COST	102400
04667	1410*	IF (XJUNK(K5),LE,XJUNK(K6)) GO TO 1003	102500
04671	1411*	K3=JUNK1(K5)	102600
04672	1412*	X=XJUNK(K5)	102700
04673	1413*	JUNK1(K5)=JUNK1(K6)	102800
04674	1414*	XJUNK(K5)=XJUNK(K6)	102900
04675	1415*	JUNK1(K6)=K3	103000
04676	1416*	XJUNK(K6)=X	103100
04677	1417*	1003 CONTINUE	103200
04702	1418*	IF (J1.GT.6) J1=6	103300
04704	1419*	DO 1004 K=1,J1	103400
04707	1420*	1004 ICREW(J2,K)=JUNK1(K)	103500
04711	1421*	1015 CONTINUE	103505
04713	1422*	J8=IDAY	103510
04714	1423*	DO 1114 K=1,IX5	103530
04717	1424*	1114 WUP(2,K)=0.0	103540
04721	1425*	2050 ISIG=0	103545
04722	1426*	DO 1116 K=1,IX10	103560
04725	1427*	K1=JRANK(K)	103565
04726	1428*	J=INDX(K1)	103570
04727	1429*	N=JVTYP(K1)	103572
04730	1430*	IF (N.EQ.1000.OR.N.EQ.2000.OR.N.EQ.3000) JIND(K1)=9	103575
04732	1431*	NX=4	103577
04733	1432*	IF (IDAY.EQ.1) NX=MULT	103578
04735	1433*	IF (IDTE(K1).GT.IDAY*NX) JIND(K1)=9	103580
04737	1434*	1116 CONTINUE	103590
04741	1435*	DO 1020 I=1,IX10	103600
04744	1436*	J=JRANK(I)	103700
04745	1437*	IF (JIND(J).EQ.9) GO TO 1020	103800
04747	1438*	WPR(J)=VPR(J)	103900
04750	1439*	IVMT(J)=0	104000
04751	1440*	IF (IVDL(J),LE,J8+NX+2) GO TO 1005	104100
04753	1441*	IF (IVTYP(J).EQ.2) GO TO 1020	104150
04755	1442*	IVMT(J)=1	104200
04756	1443*	WPR(J)=VPR(J)*MULT/(IVDL(J)-J8+1.0)	104300
04757	1444*	1005 DO 1018 K=1,6	104400
04757	1445*	C OVER SIX BEST CREWS	104500
04762	1446*	L=ICREW(J,K)	104600
04763	1447*	IF (L.EQ.0) GO TO 1020	104700
04765	1448*	L1=WPR(J)/(PROD(L)*TOJ(J))	104800
04766	1449*	IF (L1.EQ.0) L1=1	104900
04766	1450*	C CREW DAY ESTIMATE	105000
04770	1451*	1006 IF (L1*ILAB(L),LE,NDL) GO TO 1008	105100
04772	1452*	L1=NDL/ILAB(L)	105200
04773	1453*	1007 IF (L1.EQ.0) GO TO 1018	105300
04775	1454*	GO TO 1006	105400
04776	1455*	1008 K1=IE01(L)*L1	105500
04777	1456*	K2=IE02(L)*L1	105600
05000	1457*	K3=IE03(L)*L1	105700
05001	1458*	L2=IE05(L)	105800
05002	1459*	L3=IE0N(L)	105900

05003	1460*	IF (K1.LE.NDE1) GO TO 1009	106000
05005	1461*	K2=K2-NDE1+K1	106100
05006	1462*	K1=NDE1	106200
05007	1463*	1009 IF (K2.LE.NDE2) GO TO 1010	106300
05011	1464*	K3=K3-NDE2+K2	106400
05012	1465*	K2=NDE2	106500
05013	1466*	1010 IF (K3.LE.NDE3) GO TO 1011	106600
05015	1467*	L1=L1-L	106700
05016	1468*	GO TO 1007	106800
05017	1469*	1011 DO 1012 L4=L2,L3	106900
05022	1470*	L6=L4	107000
05023	1471*	L5=IEQ(L4)	107100
05024	1472*	IF (NDEQT(L5).LT.L1*INO(L4)) GO TO 1026	107200
05026	1473*	1012 CONTINUE	107300
05030	1474*	ISIG=1	107305
05031	1475*	Y=L1*TOJ(J)	107310
05032	1476*	X=Y*PROD(L)	107400
05033	1477*	M=2	107500
05034	1478*	WPR(J)=WPR(J)-X	107600
05035	1479*	IF (1VMT(J).NE.D) GO TO 1014	107700
05037	1480*	IF (WPR(J).GT.D.D) GO TO 1014	107800
05041	1481*	JIND(J)=9	107810
05042	1482*	1014 NDL=NDL-L1*ILAB(L)	107900
05043	1483*	NDE1=NDE1-K1	108000
05044	1484*	NDE2=NDE2-K2	108100
05045	1485*	NDE3=NDE3-K3	108200
05046	1486*	N=INDX(J)	108250
05047	1487*	SLH(M,N)=SLH(M,N)+Y*ILAB(L)	108300
05050	1488*	SE1H(M,N)=SE1H(M,N)+Y*IEO1(L)	108550
05051	1489*	SE2H(M,N)=SE2H(M,N)+Y*IEO2(L)	108600
05052	1490*	SE3H(M,N)=SE3H(M,N)+Y*IEO3(L)	108700
05053	1491*	WUP(M,N)=WUP(M,N)+X	108710
05054	1492*	IF (WUP(M,N).GT.XJUNK1(N)) WUP(M,N)=XJUNK1(N)	108720
05056	1493*	TCL(M,N)=TCL(M,N)+Y*(ILAB(L)*CL+K1*CE1+K2*CE2+K3*CE3)	108800
05057	1494*	DO 1016 L4=L2,L3	108900
05062	1495*	IF (INO(L4).EQ.D) GO TO 1016	109000
05064	1496*	L5=IEQ(L4)	109100
05065	1497*	NDEQT(L5)=NDEQT(L5)-L1*INO(L4)	109200
05066	1498*	EQH(M,N,L5)=EQH(M,N,L5)+INO(L4)*Y	109300
05067	1499*	EQTOT(M,N)=EQTOT(M,N)+INO(L4)*Y*EQC(L5)	109400
05070	1500*	1016 CONTINUE	109500
05072	1501*	IF (WPR(J).GT.D.D) GO TO 1018	109600
05074	1502*	GO TO 1020	109700
05075	1503*	1026 L1=NDEQT(L5)/INO(L6)	109800
05076	1504*	GO TO 1007	109900
05077	1505*	1018 CONTINUE	110000
05101	1506*	1020 CONTINUE	110100
05103	1507*	IF (ISIG.EQ.1) GO TO 2050	110200
05105	1508*	XJL(M)=NDL*8	110300
05106	1509*	XJE1(M)=NDE1*8	110400
05107	1510*	XJE2(M)=NDE2*8	110500
05110	1511*	XJE3(M)=NDE3*8	110600
05111	1512*	DO 3091 I=1,IX10	110710
05114	1513*	DO 3091 J=1,6	110720
05117	1514*	3091 ICREW(I,J)=0	110730
05122	1515*	IF (IOUT(16).EQ.D) GO TO 772	110740
05124	1516*	PRINT 986, IWEEL,NMULT	110750
05130	1517*	GO TO 773	110800

PAGE: 31

05131 1518* END

98300

END OF UNIVAC 1108 FORTRAN V COMPILATION. 1 *DIAGNOSTIC* MESSAGE(S)

PHASE 1 TIME = 3 SEC.

PHASE 2 TIME = 0 SEC.

PHASE 3 TIME = 6 SEC.

PHASE 4 TIME = 1 SEC.

PHASE 5 TIME = 4 SEC.

PHASE 6 TIME = 3 SEC.

TOTAL COMPILATION TIME = 17 SEC

BIT FOR HZONE,HZONE
UNIVAC 1108 FORTRAN V LEVEL 2206 0016 F5016R
THIS COMPILATION WAS DONE ON 12 FEB 69 AT 15:07:50

SUBROUTINE HZONE ENTRY POINT 000305

STORAGE USED (BLOCK, NAME, LENGTH)

0001 *CODE 000314
0000 *DATA 000055
0002 *BLANK 004346

EXTERNAL REFERENCES (BLOCK, NAME)

0003 NPRT\$
0004 N101\$
0005 N102\$
0006 NERR3\$

STORAGE ASSIGNMENT FOR VARIABLES (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000052	134G	0001	000022	150L	0001	000033	151L	0001	000050	152L	0001	000104	153L		
0001	000122	154L	0001	000142	162L	0001	000126	164G	0001	000163	170L	0001	000165	171L		
0001	000147	177G	0001	000246	190L	0001	000174	214G	0001	000210	223G	0001	000263	899L		
0000	000023	900F	0000	000027	910F	0000	000012	927F	0002	R	002542	CPR	0002	R	001215	DLZ
0000	R	000000	ERR	0002	I	000000	I	0002	I	000565	1HY	0002	I	000673	1HYN	
0002	I	000630	1HYS	0002	I	000736	1HZ	0002	I	001640	1VLC	0002	I	002066	1VSZ	
0002	I	000001	1X10	0002	I	000002	1X6	0000	I	000002	J	0002	I	003672	JRANK	
0002	I	000003	JUNK1	0000	I	000003	J1	0000	I	000001	K	0000	I	000007	N2	
0000	I	000010	N3	0002	R	001474	TT	0002	R	002314	TTJ	0002	R	002770	VPR	
0000	R	000005	Y	0000	R	000011	Z					0000	R	000004	X	

		SUBROUTINE HZONE		SH200000	
00101	1*				
00101	2*	C	*****COMMON STATEMENTS*****		99
00103	3*		COMMON I,IX10,IX6,JUNK1(370)		100
00103	4*	C	*****IX6**HIGHWAYS DEFINED BY ZONES		110
00104	5*		COMMON IHY(35),IHYS(35),IHYN(35)		111
00104	6*	C	*****IX6Z** ZONES IN LISTED HIGHWAYS		120
00105	7*		COMMON IHZ(175),DLZ(175)		121
00105	8*	C	*****IX8** ZONES IN AREA		130
00106	9*		COMMON TT(100)		131
00106	10*	C	*****IX10** JOBS IN INVENTORY		140
00107	11*		COMMON IVLC(150),1VSZ(150),TTJ(150),CPR(150),VPR(150),JIND(150),I		141
00107	12*		1DTE(150),JRANK(150),IVNZ(150)		142
00107	13*	C	CHECK IF THE JOB IS ZONE OR HIGHWAY ORIENTED		SH200500
00110	14*		IF(CPR(1),LE.0.0) RETURN		SH200510
00112	15*		IF(IVLC(1),NE.0) GO TO 151		SH200600
00112	16*	C	THE JOB IS ZONE ORIENTED		SH200700
00114	17*		IF(1VSZ(1),NE.0) GO TO 150		SH200800
00114	18*	C	ERROR--NO ZONE GIVEN FOR ZONE-ORIENTED JOB		SH200900

00116	19*	ERR=3HSZ1	SH201000
00117	20*	GO TO 899	SH201100
00120	21*	150 IVNZ(I)=IVSZ(I)	SH201300
00121	22*	K=IVSZ(I)	SH201400
00121	23*	C SET TRAVEL TIME TO ZONE	SH201500
00122	24*	TTJ(I)=TT(K)	SH201600
00123	25*	RETURN	SH201700
00123	26*	C CHECK TO SEE IF JOB IS FOR A PARTICULAR HIGHWAY	SH201800
00124	27*	151 IF (IVLC(I),LE,990) GO TO 152	SH201900
00124	28*	C JOB APPLIES TO MANY ZONES AND NO PARTICULAR HIGHWAY	SH202000
00126	29*	TTJ(I)=0.0	SH202100
00127	30*	IVSZ(I)=42	SH202200
00130	31*	IVNZ(I)=42	SH202300
00131	32*	IVLC(I)=0	SH202400
00132	33*	RETURN	SH202500
00133	34*	152 DO 200 J=1,IX6	SH202600
00136	35*	J1=J	SH202700
00137	36*	IF (IVLC(I),EQ,IHY(J)) GO TO 153	SH202800
00141	37*	200 CONTINUE	SH202900
00143	38*	PRINT 910, IVLC(I),IVSZ(I),IVNZ(I),X,Y	
00143	39*	C ERROR==JOB LOCATION IS NOT ON HIGHWAY LIST	SH203000
00152	40*	ERR=3HSZ4	SH203100
00153	41*	GO TO 899	SH203200
00154	42*	153 N1=IHY(J1)	SH203300
00155	43*	N2=IHYN(J1)	SH203400
00155	44*	C JOB IS FOR A HIGHWAY OR PORTION OF A HIGHWAY	SH203500
00156	45*	IF (IVSZ(I),EQ,0) GO TO 171	SH203600
00160	46*	IF (IVNZ(I),NE,0) GO TO 154	SH203700
00162	47*	IVNZ(I)=IHZ(N2)	SH203800
00163	48*	154 DO 160 J=N1,N2	SH204100
00166	49*	N3=J	SH204200
00167	50*	IF (IVSZ(I),EQ,IHZ(J)) GO TO 162	SH204300
00171	51*	160 CONTINUE	SH204400
00171	52*	C ERROR==STARTING ZONE OF JOB IS NOT ON ZONE LIST	SH204500
00173	53*	ERR=3HSZ5	SH204600
00174	54*	GO TO 899	SH204700
00175	55*	162 N1=N3	SH204800
00176	56*	DO 165 J=N1,N2	SH204900
00201	57*	N3=1	SH205000
00202	58*	IF (IVNZ(I),EQ,IHZ(J)) GO TO 170	SH205100
00204	59*	927 FORMAT ('OJOB TYPE IS UNDEFINED== JOB IS BEING IGNORED')	94890
00205	60*	165 CONTINUE	SH205200
00205	61*	C ERROR==ENDING ZONE OF JOB IS NOT ON ZONE LIST	SH205300
00207	62*	ERR=3HSZ3	SH205400
00210	63*	GO TO 899	SH205500
00211	64*	170 N2=N3	SH205600
00212	65*	171 X=0.0	SH205800
00213	66*	DO 180 J=N1,N2	SH205900
00213	67*	C FIND ZONE IN WHICH JOB WAS LAST ENDED	SH205950
00216	68*	180 X=X+DLZ(J)	SH206000
00220	69*	Y=CPR(I)/(VPR(I)+CPR(I))	SH206100
00221	70*	Z=0.0	SH206300
00222	71*	DO 185 J=N1,N2	SH206400
00225	72*	N3=J	SH206500
00226	73*	Z=Z+DLZ(J)	SH206600
00227	74*	IF ((Z,X),GT,Y1) GO TO 190	SH206700
00231	75*	185 CONTINUE	SH206800
00233	76*	PRINT 910, IVLC(I),IVSZ(I),IVNZ(I),X,Y	

PAGE: 34

00233	77*	C ERROR--MILES OF JOB COMPLETED IS GREATER THAN LENGTH OF HIGHWAY	SH206900
00242	78*	ERR=3MSZ6	SH207100
00243	79*	GO TO 899	SH207200
00244	80*	190 IVSZ(I)=IMZ(N3)	SH207300
00245	81*	N3=IVSZ(I)	SH207325
00246	82*	YTJ(I)=YY(N3)	SH207350
00247	83*	IVNZ(I)=IMZ(N2)	SH207375
00250	84*	RETURN	SH207400
00251	85*	899 PRINT 900, ERR	SH207500
00254	86*	YTJ(I)=1000.0	SH207600
00255	87*	RETURN	SH207650
00256	88*	900 FORMAT(12X,'ERROR AT ',A3)	SH207700
00257	89*	910 FORMAT(10X,315,2F9.1)	
00260	90*	END	SH207800

END OF UNIVAC 1108 FORTRAN V COMPILATION. 0 *DIAGNOSTIC* MESSAGE(S)

PHASE 1 TIME = 1 SEC.
PHASE 2 TIME = 0 SEC.
PHASE 3 TIME = 0 SEC.
PHASE 4 TIME = 0 SEC.
PHASE 5 TIME = 0 SEC.
PHASE 6 TIME = 1 SEC.

TOTAL COMPILATION TIME = 2 SEC

BIT FOR RANK,RANK
 UNIVAC 1108 FORTRAN V LEVEL 2206 0016 F5Q168
 THIS COMPILATION WAS DONE ON 12 FEB 69 AT 15107153

SUBROUTINE RANK ENTRY POINT 000106

STORAGE USED (BLOCK, NAME, LENGTH)

0001 *CODE 000122
 0000 *DATA 000030
 0002 *BLANK 003437

EXTERNAL REFERENCES (BLOCK, NAME)

0003 NERR35

STORAGE ASSIGNMENT FOR VARIABLES (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000005	1076	0001	000013	1126	0001	000063	134L	0001	000056	174L	0002	R	001633	CPR
0002	I	000000	I	0002	I	002535	1076	0002	I	003211	1VNZ	0002	I	001157	IVSZ
0002	I	000001	IX10	0002	I	000002	IX6	0000	I	000003	12	0000	I	002302	JIND
0002	I	002763	JRANK	0002	I	000003	JUNK1	0000	I	000001	J1	0000	I	000002	J2
0002	R	001405	TTJ	0002	R	002061	VPR					0002	R	000565	TT

00101	1*	SUBROUTINE RANK	99
00101	2*	C*****COMMON STATEMENTS*****	100
00103	3*	COMMON I,IX10,IX6,JUNK1(370)	130
00103	4*	C*****IX6 ZONES IN AREA	131
00104	5*	COMMON TT(100)	140
00104	6*	C*****IX10 JOBS IN INVENTORY	141
00105	7*	COMMON IVLC(150),IVSZ(150),TTJ(150),CPR(150),VPR(150),JIND(150),I	142
00105	8*	IDTE(150),JRANK(150),IVNZ(150)	59100
00106	9*	DO 135 I=1,IX10	59200
00111	10*	DO 134 J=1,IX10	59250
00114	11*	J1=JRANK(I)	59275
00115	12*	J2=JRANK(J)	59300
00116	13*	IF(JIND(J2).EQ.9) GO TO 134	59400
00120	14*	IF(JUNK1(J2)=JUNK1(J1)+J74,J73+134	59500
00123	15*	173 IF (IDTE(J2).GT.IDTE(J1).AND.JIND(J1).NE.9) GO TO 134	59900
00125	16*	174 I2=JRANK(J)	60000
00126	17*	JRANK(J)=JRANK(I)	60100
00127	18*	JRANK(I)=I2	60200
00130	19*	134 CONTINUE	60300
00132	20*	135 CONTINUE	
00134	21*	RETURN	
00135	22*	END	

END OF UNIVAC 1108 FORTRAN V COMPILATION. 0 *DIAGNOSTIC MESSAGE(S)

PHASE 1 TIME = 0 SEC.

PHASE 2 TIME = 0 SEC.

PAGE: 36

PHASE 3 TIME = 0 SEC.

PHASE 4 TIME = 0 SEC.

PHASE 5 TIME = 0 SEC.

PHASE 6 TIME = 0 SEC.

TOTAL COMPILATION TIME = 0 SEC

Q XQT HIWAY

BLANK COMMON 157432 163777

STARTING ADDRESS 014000

CORE LIMITS 014000 034410 100000 125635 157424 157431

HIWAY /CODE

0 100000-124253
1 014000-027303

NSTOPS /CODE

1 027304-027315

NOUTS /CODE

0 124254-124260
1 027316-030363
2 124261-124321

NTABS /CODE

0 124322-124527

NFTVS /CODE

1 030364-030406

NIOINS /CODE

1 030407-030453
2 124530-124560

NOTINS /CODE

1 030454-030746
2 124561-124623

NFMTS /CODE

1 030747-031754
2 124624-124744

NIERS /CODE

0 124745-124745
1 031755-032122
2 124746-125031

NERRS /CODE

PAGE: 38

0 125032-125150
1 032123-032462

NINPTS/CODE

0 125151-125151
1 032463-033616
2 125152-125204

FLOATX

0 125205-125320

NEXPSX

0 125321-125405

CONVTX

0 125406-125460

NININS/CODE

1 033617-033752
2 125461-125530

RANK /CODE

0 125531-125560
1 033753-034074

HZONE /CODE

0 125561-125635
1 034075-034410

END OF ALLOCATION 1103 0033

MAXIMA	IX4=	25	IX5=	30	IX5E=	250	IX6=	35	IX6Z=	175	IX8=	100	IX9=	an	IX10=	150
--------	------	----	------	----	-------	-----	------	----	-------	-----	------	-----	------	----	-------	-----

HOLIDAYS 1 53 150 185 215 310 324 359

INPUT

[illegible]

PERSONNEL INVENTORY NUMBER AVAILABLE AND HOURLY RATE

FOREMEN	7	3.45
EQ OP 1	23	2.50
EQ OP 2	4	2.85
EQ OP 3	1	3.25
LABORERS	58	2.00

EQUIPT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TOWED DISTR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DUMP TRUCK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ROLLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASPHALT PVER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
MOTOR GRADER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TOWED BROOM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
FARM TRACTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AIR COMPRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
PICKUP TRUCK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TRK+PNT STRP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
FLY-BED TRCK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
FRNT-END LDR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
GRADALL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TOWD ASPH KT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
POWER SPR RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SCREENSDE TK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
MOBILE SWEEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SICKLE-BAR M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ROTARY MOWER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

JOB TYPES AND BASIC CREW DATA

EMERGENCY 1000 1 11111111 11111111 11111111 11111111 1 370 .0 1

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
1	1	1.0	1	0	0	2	8.90	1-	1	2	1	

TRAFFIC SERV 2 2 11111111 11111111 11111111 11111111 1 370 .0 2

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
2	2	1.0	1	0	0	2	8.90	2-	2	2	1	

LIGHT SNOW 2000 3 00000000 00000000 00000000 00000000 1 370 .0 3

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
3	3	.1	1	0	0	1	6.90	3-	3	2	1	
3	4	.0	0	0	0	1	2.00	4-	4	2	0	
3	5	.0	1	0	0	0	2.50	5-	5	2	0	

SNOW PLOW 3000 4 00000000 00000000 00000000 00000000 1 370 .0 6

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
4	6	.1	1	0	0	1	6.90	6-	6	2	1	
4	7	.0	1	0	0	0	4.90	7-	7	2	1	
4	8	.0	0	0	1	0	3.25	8-	8	2	0	
4	9	.0	0	0	0	1	2.00	9-	9	2	0	

SNOW CLEAN 3500 5 00000000 00000000 00000000 00000000 1 370 .0 10

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
5	10	.1	1	0	0	0	4.90	10-	10	2	1	
5	11	.0	1	0	0	0	10.30	11-	11	5	1	
5	12	.0	0	0	0	11	22.00	12-	12	2	0	
5	13	.0	0	0	0	1	2.00	13-	13	2	0	

3 6 00010110 10010110 10011111 11011111 0 366 .5 14

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
6	14	.9	2	1	0	3	30.35	14-	16	5	1	2 2 3 1
6	15	1.3	2	2	0	4	45.40	17-	19	5	2	2 3 3 1
6	16	2.3	4	2	0	4	52.65	20-	24	5	2	2 3 6 1 7 1 3 1

4 7 100100100 11111111 11111111 11111111 289 320 1.0 17

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
7	17	540.0	3	0	0	4	22.70	25-	25	2	3	
7	18	585.0	3	0	0	5	24.70	26-	26	2	3	
7	19	625.0	4	0	0	6	31.60	27-	27	2	4	
7	20	415.0	2	0	0	3	15.80	28-	28	2	2	

5 8 100100100 11111111 11111111 11111111 75 106 .5 21

JOB	CREW	PROD	E01	E02	E03	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE-NUMBER
8	21	1300.0	2	0	0	4	17.80	29-	29	2	2	
8	22	1690.0	3	0	0	5	24.70	30-	30	2	3	
8	23	2050.0	4	0	0	6	31.60	31-	31	2	4	
8	24	1150.0	2	0	0	3	15.80	32-	32	2	2	

6 9 000100100 100111111 100111111 110111111 75 289 1.0 25													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
9	25	4.0	4	1	0	3	29.65	33= 35	10	1	11	1	2 1
8 10 000100100 100100100 110110110 111110110 0 366 .5 26													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
10	26	.6	2	0	1	5	36.05	36= 37	13	1	2	2	
10	27	.9	2	0	1	6	40.45	38= 39	13	1	2	3	
9 11 000100100 100110110 100111111 110111111 336 60 1.5 28													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
11	28	.2	1	0	0	1	6.90	40= 40	2	1			
11	29	.3	1	0	0	4	12.90	41= 41	2	1			
11	30	595.0	2	0	0	9	33.30	42= 44	2	3	14	1	8 1
11	31	637.0	2	0	0	9	33.30	45= 47	2	3	14	1	8 1
10 12 000100000 100100100 100110110 110110110 153 305 .5 32													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
12	32	2.3	0	0	0	3	12.75	48= 50	7	3	18	2	19 1
12	33	3.2	1	0	0	4	19.50	51= 53	7	4	18	2	19 2
12	34	.9	0	0	0	1	4.25	54= 55	7	1	18	1	
12	35	2.0	0	0	0	2	8.50	56= 58	7	2	18	1	19 1
12	36	2.6	0	0	0	4	17.00	59= 61	7	4	18	3	19 1
12	37	1.4	1	0	0	2	11.00	62= 63	7	2	18	2	
101 13 000100100 100110110 110111111 111111111 0 366 1.5 38													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
13	38	2.7	2	0	0	4	22.30	64= 66	14	1	2	2	3 1
13	39	3.3	2	0	0	5	26.70	67= 69	14	1	2	3	3 1
13	40	5.4	3	0	0	5	29.80	70= 72	1	1	2	3	3 1
13	41	6.0	4	0	0	6	36.70	73= 75	1	1	2	4	3 1
102 14 000100100 100111111 110111111 111111111 0 366 2.0 42													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
14	42	1.0	1	0	0	2	9.50	76= 77	14	1	2	1	
14	43	2.0	2	0	0	4	22.30	78= 80	14	1	2	2	3 1
14	44	4.0	3	0	0	7	33.20	81= 83	14	1	2	3	3 1
14	45	5.0	4	0	0	7	38.10	84= 86	14	1	2	4	3 1
14	46	10.0	4	1	0	8	53.75	87= 90	1	1	2	5	3 1 5 1
103 15 100110110 100111111 110111111 111111111 0 366 .5 47													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
15	47	7.0	2	0	0	2	13.80	91= 91	2	2			
15	48	14.0	3	1	0	2	29.35	92= 93	2	3	5	1	
15	49	3.5	1	0	0	1	6.90	94= 94	2	1			
104 16 000100100 100111111 100111111 110111111 0 366 1.0 50													
JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND	TYPE=NUMBER	
16	50	1.5	0	1	0	0	10.65	95= 95	5	1			
16	51	2.8	0	2	0	0	21.30	96= 96	5	2			

105 17 100100100 100100100 100110110 110110110 0 366 .0 52

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
17	52	143.0	1	0	0	1	6.90	97- 97	2	1	
17	53	200.0	1	0	0	3	10.90	98- 98	2	1	
17	54	430.0	1	0	0	5	14.90	99- 99	2	1	
17	55	571.0	1	0	0	8	23.30	100-100	2	2	

106 18 100100100 100111111 110111111 111111111 0 366 .0 56

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
18	56	5.0	1	0	0	1	6.90	101-101	2	1	
18	57	7.0	1	0	0	2	8.90	102-102	2	1	
18	58	12.0	1	0	0	4	12.90	103-103	2	1	

108 19 000110110 110111111 110111111 111111111 0 366 .5 59

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
19	59	46.0	1	0	0	1	5.80	104-104	16	1	
19	60	62.0	1	0	0	2	7.80	105-105	16	1	

1 20 000100100 100111111 100111111 110111111 153 245 .5 61

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
20	61	26.9	6	0	0	7	58.90	106-109	1	1	2 6 3 1 4 1
20	62	17.7	4	0	0	7	49.10	110-113	1	1	2 4 3 1 4 1

7 21 100100100 100100100 100110110 110110110 0 366 .5 63

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
21	63	67.0	3	1	0	3	33.85	114-116	5	1	2 2 12 1
21	64	100.0	4	2	0	4	51.40	117-119	5	2	2 3 12 1
21	65	67.0	3	0	1	3	34.55	120-121	13	1	2 2
21	66	100.0	4	1	1	4	52.10	122-124	13	1	5 1 2 3

107 22 000100100 100111111 100111111 110111111 92 305 1.0 67

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
22	67	117.0	1	0	0	2	8.45	125-126	11	1	15 1
22	68	83.0	1	0	0	2	8.90	127-127	2	1	

109 23 100100100 110100100 100111111 110111111 0 366 .0 69

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
23	69	4.0	1	0	0	2	8.90	128-128	2	1	
23	70	6.5	1	0	0	4	12.90	129-129	2	1	
23	71	9.0	1	0	0	6	19.30	130-130	2	2	
23	72	3.0	1	0	0	1	6.90	131-131	2	1	

110 24 100100100 100110110 110111111 111111111 0 366 1.0 73

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
24	73	2.0	1	0	0	0	9.70	132-132	17	1	

111 25 100110110 111111111 111111111 111111111 0 366 .5 74

JOB	CREW	PROD	EO1	EO2	EO3	LAB	HR	COST	EQUIPMENT	INDEX	AND TYPE-NUMBER
-----	------	------	-----	-----	-----	-----	----	------	-----------	-------	-----------------

PAGE: 43

25	74	5.0	1	0	0	1	5.80	133-133	16	1
25	75	7.0	1	0	0	2	7.80	134-134	16	1

HIGHWAYS AND CORRESPONDING ZONES

[illegible]

PAGE: 45

ZONE	19	210	92	98	37	45	54	63	71	80	79
					1.7	2.0	2.0	1.9	2.1	.3	4.5
ZONE	20	223	99	105	40	49	48	56	55	64	71
					2.1	1.9	2.1	2.3	1.0	2.2	1.2
ZONE	21	373	106	111	79	80	81	82	73	74	
					.6	2.1	2.1	.4	1.7	1.3	
ZONE	22	214	112	118	14	15	15	17	18	19	20
					1.3	1.9	2.0	1.9	1.9	2.1	2.6
ZONE	23	596	119	123	3	10	17	18	25		
					2.1	2.2	1.0	1.3	.2		
ZONE	24	459	124	124	7						
					2.4						
ZONE	25	637	125	125	28						
					.6						
ZONE	26	631	126	126	78						
					.4						
ZONE	27	973	127	127	7						
					.2						
ZONE	28	704	128	132	3	2	1	8	14		
					.5	2.2	.5	2.2	1.4		

WEATHER CALENDAR

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
LAST THREE DAYS OF PRECEDING YEAR																																	
JAN	4	4	5	5	4	6	4	1	3	3	1	1	1	1	1	1	1	5	4	4	4	4	6	4	4	4	1	4	2	2	4	4	
FEB	4	4	6	4	4	4	2	3	1	2	4	2	5	4	3	5	4	1	1	1	4	1	4	1	2	4	4	4	4	5			
MARCH	4	4	4	4	5	4	4	4	4	4	4	5	4	4	4	4	4	4	4	3	2	4	4	4	5	4	4	2	2	2	5	4	
APRIL	4	4	6	5	5	4	4	4	4	4	4	6	5	4	4	4	5	5	5	4	4	4	4	4	4	4	5	4	4	4	4		
MAY	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
JUNE	4	4	5	4	4	4	4	4	4	4	4	7	8	4	4	4	5	8	7	4	4	5	4	4	6	4	4	7	7	4	8		
JULY	4	4	4	4	6	4	4	4	5	5	4	4	7	4	7	4	7	4	5	5	7	4	4	4	4	7	7	4	4	4	4	6	
AUGUST	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	7	7	4	4	7	4	4	4	4	4	7	4	4	
SEPT	4	4	4	4	4	4	4	4	7	4	5	4	4	4	4	4	5	4	4	4	4	4	4	4	6	6	4	6	4	5	4	4	
OCT	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
NOV	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	1	4	4	4	4	4	4	4	4	4	4	1	4	5	4
DEC	5	5	4	1	4	4	1	4	6	4	4	2	1	4	4	4	1	5	1	4	4	4	4	5	6	4	4	4	4	4	4	4	4

TRAVEL TIME TO ZONE

[illegible]

RECURRING JOB PROTOTYPES

1	2 0	16.00	991	0	0	1	1	1	1	1	0
2	8 2	.10	495	0	0	4	7	366	0	11	30
3	8 2	.10	495	0	0	4	7	366	0	2	30
4	8 2	.10	495	0	0	4	7	366	0	4	30
5	8 2	.10	495	0	0	4	7	366	0	91	30
6	8 2	.10	295	0	0	4	7	366	0	222	30
7	108 3	100.00	993	0	0	10	30	366	0	2	40
8	111 3	.30	301	26	0	0	1	5	0	4	20
9	102 3	5.00	556	10	0	2	7	7	0	30	20
10	111 3	.10	223	40	0	0	1	5	0	4	20
11	111 3	.10	373	79	0	0	1	5	0	4	20
12	111 3	.20	50	7	0	0	1	5	0	4	20
13	102 3	1.00	459	7	0	2	7	7	0	30	20
14	102 3	1.00	459	7	0	2	7	7	0	30	20
15	102 3	1.00	301	83	0	2	7	7	0	30	20
16	101 3	.70	495	38	0	2	1	60	0	30	20
17	111 3	.10	214	14	0	0	1	5	0	4	20
18	102 3	2.00	202	33	0	2	7	7	0	30	20
19	101 3	.30	210	45	0	2	1	60	0	30	0
20	111 3	.10	382	50	0	0	1	5	0	4	20
21	111 3	.10	704	3	0	0	1	5	0	4	20
22	102 3	3.00	3	6	0	2	7	7	0	30	20
23	102 3	4.00	50	4	0	2	7	7	0	30	20
24	104 3	3.10	382	0	0	2	3	10	0	180	40
25	111 3	.20	4	21	0	0	1	5	0	4	20
26	111 3	.10	459	7	0	0	1	5	0	4	20
27	111 3	.10	381	74	0	0	1	5	0	4	20
28	101 3	1.40	5	39	0	2	1	60	0	30	0
29	111 3	.10	458	21	0	0	1	5	0	4	20
30	111 3	.10	337	30	0	0	1	5	0	4	20
31	111 3	.10	408	41	0	0	1	5	0	4	20
32	102 3	2.00	5	48	0	2	7	7	0	30	20
33	111 3	.10	414	37	0	0	1	5	0	4	20
34	102 3	1.00	414	37	0	2	7	7	0	30	20
35	101 3	.70	704	8	0	2	1	60	0	30	20
36	101 3	.70	337	30	0	2	1	60	0	30	20
37	101 3	.30	373	73	0	2	1	60	0	30	20
38	10 2	26.00	301	0	0	8	30	30	153	40	30
39	10 2	15.90	202	0	0	8	30	30	153	40	30
40	10 2	2.90	3	0	0	8	30	30	153	40	30

MAXIMA	IX4#	25	IX5=	30	IX5C=	110	IX5E=	250	IX6=	35	IX6Z=	175	IX8=	100	IX9=	80	IX10=
CALCULATED	19			25		75		134		28		132		94		40	
1	108	3	700.00	0	42	42	10	30	367	1	19						
2	4	2	580.00	373	79	74	2	7	181	1	7						
3	4	2	480.00	214	14	20	2	7	181	1	7						
4	4	2	230.00	556	3	25	2	7	181	1	7						
5	4	2	110.00	459	7	7	2	7	181	1	7						
6	4	2	260.00	704	3	14	2	7	181	1	7						
7	5	2	700.00	301	3	83	2	7	367	1	8						
8	5	2	420.00	202	7	34	2	7	367	1	8						
9	5	2	80.00	3	6	6	2	7	367	1	8						
10	5	2	450.00	50	7	6	2	7	367	1	8						
11	5	2	410.00	5	28	74	2	7	367	1	8						
12	5	2	440.00	4	21	43	2	7	367	1	8						
13	5	2	100.00	210	37	79	2	7	367	1	8						
14	5	2	400.00	495	34	1	2	7	367	1	8						
15	5	2	30.00	295	36	36	2	7	367	1	8						
16	5	2	480.00	381	74	93	2	7	367	1	8						
17	5	2	500.00	382	50	82	2	7	367	1	8						
18	5	2	80.00	458	21	28	2	7	367	1	8						
19	5	2	240.00	408	41	43	2	7	367	1	8						
20	5	2	130.00	884	21	30	2	7	367	1	8						
21	5	2	110.00	337	30	39	2	7	367	1	8						
22	5	2	170.00	414	37	28	2	7	367	1	8						
23	5	2	440.00	223	40	71	2	7	367	1	8						
24	5	2	560.00	373	79	74	2	7	367	1	8						
25	5	2	460.00	214	14	20	2	7	367	1	8						
26	5	2	230.00	556	3	25	2	7	367	1	8						
27	5	2	110.00	459	7	7	2	7	367	1	8						
28	5	2	260.00	704	3	14	2	7	367	1	8						
29	6	2	24.00	0	42	42	8	30	367	1	9						
30	6	2	13.00	0	42	42	8	30	367	1	9						
31	110	3	1.40	495	34	1	4	5	31	1	24						
32	1000	1	3.00	0	71	71	2	8	18	10	1						
33	2	0	16.00	0	42	42	1	1	3	2	2						
34	2	0	16.00	0	42	42	1	1	4	3	2						
35	2	0	16.00	0	42	42	1	1	5	4	2						
36	2	0	16.00	0	42	42	1	1	8	7	2						
37	2	0	16.00	0	42	42	1	1	9	8	2						
38	8	2	10	495	34	1	4	7	366	0	10						
39	8	2	10	495	34	1	4	7	366	0	10						
40	8	2	10	495	34	1	4	7	368	2	10						
41	8	2	10	495	34	1	4	7	370	4	10						
42	8	2	10	495	34	1	4	7	372	6	10						
43	8	2	10	495	34	1	4	7	374	8	10						
44	8	2	10	495	34	1	4	7	366	0	10						
45	8	2	10	495	34	1	4	7	370	4	10						
46	8	2	10	495	34	1	4	7	374	8	10						
47	8	2	10	495	34	1	4	7	366	0	10						
48	8	2	10	295	36	36	4	7	366	0	10						
49	108	3	100.00	0	42	42	10	30	366	0	19						
50	108	3	100.00	0	42	42	10	30	368	2	19						
51	108	3	100.00	0	42	42	10	30	370	4	19						
52	108	3	100.00	0	42	42	10	30	372	6	19						
53	108	3	100.00	0	42	42	10	30	374	8	19						
54	111	3	30	301	26	7	0	1	5	0	25						
55	111	3	30	301	26	1	0	1	9	4	25						
56	111	3	30	301	26	2	0	1	13	8	25						

57	102	3	5.00	556	10	3	2	7	7	0	14
58	111	3	.10	223	40	4	0	1	5	0	25
59	111	3	.10	223	40	5	0	1	9	4	25
60	111	3	.10	223	40	6	0	1	13	8	25
61	111	3	.10	373	79	34	0	1	5	0	25
62	111	3	.10	373	79	37	0	1	9	4	25
63	111	3	.10	373	79	38	0	1	13	8	25
64	111	3	.20	50	7	39	0	1	5	0	25
65	111	3	.20	50	7	30	0	1	9	4	25
66	111	3	.20	50	7	23	0	1	13	8	25
67	102	3	1.00	459	7	16	2	7	7	0	14
68	102	3	1.00	459	7	9	2	7	7	0	14
69	102	3	1.00	301	83	2	2	7	7	0	14
70	101	3	.70	495	38	1	2	1	60	0	13
71	111	3	.10	214	14	36	0	1	5	0	25
72	111	3	.10	214	14	28	0	1	9	4	25
73	111	3	.10	214	14	39	0	1	13	8	25
74	102	3	2.00	202	33	47	2	7	7	0	14
75	101	3	.30	210	45	48	2	1	60	0	13
76	111	3	.10	382	50	57	0	1	5	0	25
77	111	3	.10	382	50	66	0	1	9	4	25
78	111	3	.10	382	50	74	0	1	13	8	25
79	111	3	.10	704	3	30	0	1	5	0	25
80	111	3	.10	704	3	39	0	1	9	4	25
81	111	3	.10	704	3	21	0	1	13	8	25
82	102	3	3.00	3	6	29	2	7	7	0	14
83	102	3	4.00	50	4	30	2	7	7	0	14
84	104	3	3.10	382	50	82	2	3	10	0	16
85	111	3	.20	4	21	40	0	1	5	0	25
86	111	3	.20	4	21	41	0	1	9	4	25
87	111	3	.20	4	21	42	0	1	13	8	25
88	111	3	.10	459	7	43	0	1	5	0	25
89	111	3	.10	459	7	37	0	1	9	4	25
90	111	3	.10	459	7	38	0	1	13	8	25
91	111	3	.10	381	74	28	0	1	5	0	25
92	111	3	.10	381	74	37	0	1	9	4	25
93	111	3	.10	381	74	45	0	1	13	8	25
94	101	3	1.40	5	39	54	2	1	60	0	13
95	111	3	.10	458	21	63	0	1	5	0	25
96	111	3	.10	458	21	71	0	1	9	4	25
97	111	3	.10	458	21	80	0	1	13	8	25
98	111	3	.10	337	30	79	0	1	5	0	25
99	111	3	.10	337	30	40	0	1	9	4	25
100	111	3	.10	337	30	49	0	1	13	8	25
101	111	3	.10	408	41	48	0	1	5	0	25
102	111	3	.10	408	41	56	0	1	9	4	25
103	111	3	.10	408	41	55	0	1	13	8	25
104	102	3	2.00	5	48	64	2	7	7	0	14
105	111	3	.10	414	37	71	0	1	5	0	25
106	111	3	.10	414	37	79	0	1	9	4	25
107	111	3	.10	414	37	80	0	1	13	8	25
108	102	3	1.00	414	37	81	2	7	7	0	14
109	101	3	.70	704	8	82	2	1	60	0	13
110	101	3	.70	337	30	73	2	1	60	0	13
111	101	3	.30	373	73	74	2	1	60	0	13

WEEKLY PLAN	WEEK 0	3 WORK DAYS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		

INDEX TYPE NAME	LABORERS				LABOR HOURS				TOTAL	LABOR COST	TOTAL COST	W.U. PLANNED	W.U. DONE	W.U. CARRIED
	EQ OP 1	EQ OP 2	EQ OP 3	EQ OP 4	EQ OP 1	EQ OP 2	EQ OP 3	EQ OP 4						
2 2 TRAFFIC SERV	48.0	24.0	.0	.0	.0	.0	.0	.0	72.0	156.00	213.60	.7	.0	.0
7 4	90.9	60.6	.0	.0	.0	.0	.0	.0	151.5	333.30	478.74	.5	.0	.0
8 5	601.9	300.9	.0	.0	.0	.0	.0	.0	902.8	1956.07	2678.31	4.0	.0	.0
9 6	42.0	56.0	14.0	.0	.0	.0	.0	.0	112.0	263.90	415.10	.2	.0	.0
10 8	132.0	44.0	.0	22.0	.0	.0	.0	.0	198.0	455.77	900.17	1.7	.0	.0
14 102	10.5	5.3	.0	.0	.0	.0	.0	.0	15.8	36.08	51.88	5.3	.0	.0
19 108	60.0	30.0	.0	.0	.0	.0	.0	.0	90.0	202.87	241.87	.6	.0	.0
24 110	.0	6.8	.0	.0	.0	.0	.0	.0	6.8	17.08	64.28	.7	.0	.0
25 111	28.6	14.4	.0	.0	.0	.0	.0	.0	43.2	98.64	117.36	100.8	.0	.0
TOTALS	1014	542	14	22	.0	.0	.0	.0	1592	3520	5163			
JOB X LABOR	216.0	.0	.0	.0	.0	.0	.0	.0	216.0	432.00				

EQUIPMENT SUMMARY

[illegible]

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH reports National Bureau of Standards research and development in physics, mathematics, chemistry, and engineering. Comprehensive scientific papers give complete details of the work, including laboratory data, experimental procedures, and theoretical and mathematical analyses. Illustrated with photographs, drawings, and charts.

Published in three sections, available separately:

● Physics and Chemistry

Papers of interest primarily to scientists working in these fields. This section covers a broad range of physical and chemical research, with major emphasis on standards of physical measurement, fundamental constants, and properties of matter. Issued six times a year. Annual subscription: Domestic, \$6.00; foreign, \$7.25*.

● Mathematical Sciences

Studies and compilations designed mainly for the mathematician and theoretical physicist. Topics in mathematical statistics, theory of experiment design, numerical analysis, theoretical physics and chemistry, logical design and programming of computers and computer systems. Short numerical tables. Issued quarterly. Annual subscription: Domestic, \$2.25; foreign, \$2.75*.

● Engineering and Instrumentation

Reporting results of interest chiefly to the engineer and the applied scientist. This section includes many of the new developments in instrumentation resulting from the Bureau's work in physical measurement, data processing, and development of test methods. It will also cover some of the work in acoustics, applied mechanics, building research, and cryogenic engineering. Issued quarterly. Annual subscription: Domestic, \$2.75; foreign, \$3.50*.

TECHNICAL NEWS BULLETIN

The best single source of information concerning the Bureau's research, developmental, cooperative and publication activities, this monthly publication is designed for the industry-oriented individual whose daily work involves intimate contact with science and technology—for *engineers, chemists, physicists, research managers, product-development managers, and company executives*. Annual subscription: Domestic, \$3.00; foreign, \$4.00*.

*Difference in price is due to extra cost of foreign mailing.

Order NBS publications from:

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

NONPERIODICALS

Applied Mathematics Series. Mathematical tables, manuals, and studies.

Building Science Series. Research results, test methods, and performance criteria of building materials, components, systems, and structures.

Handbooks. Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications. Proceedings of NBS conferences, bibliographies, annual reports, wall charts, pamphlets, etc.

Monographs. Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

National Standard Reference Data Series. NSRDS provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated.

Product Standards. Provide requirements for sizes, types, quality and methods for testing various industrial products. These standards are developed cooperatively with interested Government and industry groups and provide the basis for common understanding of product characteristics for both buyers and sellers. Their use is voluntary.

Technical Notes. This series consists of communications and reports (covering both other agency and NBS-sponsored work) of limited or transitory interest.

Federal Information Processing Standards Publications. This series is the official publication within the Federal Government for information on standards adopted and promulgated under the Public Law 89-306, and Bureau of the Budget Circular A-86 entitled, Standardization of Data Elements and Codes in Data Systems.

CLEARINGHOUSE

The Clearinghouse for Federal Scientific and Technical Information, operated by NBS, supplies unclassified information related to Government-generated science and technology in defense, space, atomic energy, and other national programs. For further information on Clearinghouse services, write:

Clearinghouse
U.S. Department of Commerce
Springfield, Virginia 22151

